

# **The Achilles Heel of the EU's Renewable Energy Directive sustainability criteria.**

The policy on biofuel and its limitation to understanding sustainability.

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## **LUCSUS**

Lund University Centre for  
Sustainability Studies



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## Abstract

Within the Renewable Energy Directive, the European Union has embedded sustainability criteria, addressing sustainable biofuels. Due to criticism, the sustainability criteria have been re-examined by the EU in the light of Indirect Land Use Change (ILUC). This thesis focuses on the sustainability understanding of the EU on biofuels, through assessing the sustainability criteria in the realms of sustainability science. Ecological modernization theory, weak, strong and critical sustainability are applied to the sustainability criteria. Following this, the example of water grievances caused by palm oil production, for biofuel, in Indonesia, Central Kalimantan, is outlined. Highlighting how the water quality and quantity of the river basin within the direct proximity of the palm oil plantation is negatively affected, will emphasize the important role of water management for sustainable biofuel production. Linking this back to the sustainability criteria, it will serve as an example of what is left out from the EU's criteria. Therefore, the need for analyzing the dominant discursive focus on the sustainability criteria becomes evident. The method of argumentative discourse analysis by Hajer is applied, in order to examine the underlying power dynamics in policy-making of the EU in formulating the sustainability criteria. Assessing different discursive practices that have occurred during the policy-making process from the beginning of the RED up to the ILUC debate, uncovers a dominant GHG accounting discourse within the sustainability criteria. The current ILUC debate highlights how the dominant discourse on GHG accounting, has been reproduced by the EU. Finally, the thesis addresses the implication for sustainability science and international justice debate. The decontextualization of GHG emissions from its geo-political, social and ecological realities has implied that biofuels entail the concept of placelessness. Since the EU has been defined as a normative power in international environmental policy-making, it has a great impact on framing the conception of sustainable biofuels. The limited sustainability criteria, can therefore be understood as undermining the sustainability commitment of the EU. Terming these limited criteria as sustainability criteria, therefore also entails the danger of minimizing the commitment to a more encompassing sustainability understanding. The thesis is based on a qualitative approach, including policy document analysis and qualitative led interviews with representatives of the EU.

### **Keywords:**

EU Renewable Energy directive – Biofuel policy – Sustainability Criteria – Indirect Land Use Change – Water management – Greenhouse Gas Accounting - Argumentative Discourse Analysis – Placelessness

**Words:** 13981

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## Abbreviations

ADA	Argumentative Discourse Analysis
DG	Directorate Generale (of the European Commission)
EC	European Commission
EMT	Ecological Modernization Theory
ENVI	Environment and Health Committee of the European Parliament
EP	European Parliament
EU	European Union
GDP	Gross Domestic Product
GHG	Greenhouse gas
IEEP	Institute for European Environmental Policy
ILUC	Indirect Land Use Change
ITRE	Industry and Energy Committee of the European Parliament
LUC	Land Use Change
NGO	Non-Governmental Organizations
RED	Renewable Energy Directive
TEC	Treaty of the European Community
SEI	Stockholm Environment Institute

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"The diligent farmer plants trees, of which he himself will never see the fruit."

— Cicero

## 1 Introduction:

In the past decade biofuels have entered the scene of renewable energy discussions. In the light of the current climate change debate within the international policy realm, considerations on reducing greenhouse gas emission in all sectors are investigated in-depth (Moolna, 2012). The transport sector is regarded as one of the key sectors that needs to be transformed to break with the current fossil fuel dependency (EC, 2009). At the same time the agricultural industry has followed the process of biofuel development with contentment, hoping to expand its profits and ensuring greater stability of revenue. The discussion on energy security has been another driving force for the development of biofuels. Energy security has become a pressing issue with a growing population and increasing energy use, while at the same time facing scarce fossil fuel reserves and political tensions in energy import and export (Franco et al, 2010).

The European Union (EU) introduced the Renewable Energy Directive in 2009 (RED). Its goal is to achieve a total of 20% renewable energy to be generated within the borders of the EU by 2020. Within this directive the European Commission (EC) also included a goal of achieving 10% of biofuel within the transport sector. Thus, by 2020, 10% of all the fuel used in the EU for transport is supposed to come from bio-energy sources (EC, 2009). In order to ensure that the biofuels are sustainable, the EU included article 17 in the directive titled "Sustainability criteria for biofuels and bioliquids"<sup>1</sup> (EC, 2009, p.36). In the article the EU guarantees that no further land conversion with detrimental effects to the climate and biodiversity would occur for the sake of biofuel expansion. The EU has been appraised for being the first institution introducing supranationally binding sustainability criteria<sup>2</sup> for biofuels (Bastos & Gupta, 2009). This fits well with the aim of the EU to present itself as leader in international environmental policy. Sustainable development plays a crucial role for EU legislation, which is incorporated it in the general policy drafting (Baker, 2006).

Nevertheless, criticism is voiced on biofuels and its impact on people and the environment. Already before RED was introduced, non-governmental organizations (NGO) from Central America, argued that the promotion of biofuel would have a detrimental effect on food availability (Fast,

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1 However the sustainability criteria are only applicable for the biofuels that are being counted into the 10% goal of the RED.

2 This will be further explained in the background section and the analysis of the sustainability criteria. Next to the EU's binding sustainability criteria for biofuels, there only exist international voluntary schemes such as the Roundtable on Sustainable Biofuels, the Roundtable on Sustainable Palm Oil, the Roundtable on Responsible Soy, the Better Sugarcane Initiative and the Forest Stewardship Council (Guaraigata et al., 2011).

2009). Next to these critiques, scientists published research proving that biofuels do not always achieve carbon dioxide reductions (Fargione et al., 2008). The latter finding has introduced the debate on indirect land-use change (ILUC) of biofuel production. It is crucial to point out that the rise of biofuel use has been policy driven (Koh & Ghazoul, 2008). Thus, if biofuel related issues do arise, the supranational as well as national institutions can change regulations that affect biofuel production<sup>3</sup>.

In my thesis I will use the RED policy document as a basis for analyzing its underlying sustainability understanding in relation to the theories of weak, strong and critical sustainability. The example of water grievances of communities close to palm oil cultivation for biofuel in Central Kalimantan in Indonesia, will help to widen the focus of sustainable biofuel understanding. The example will open the analysis of the policy-making process of the EU and the dominant discursive practices that were apparent. The indirect land-use change debate will be outlined in order to understand how the discourse has been reproduced.

## 1.1 Relevance

To be able to meet the 10% goal of biofuel use in transport, the EU needs to import biodiesel<sup>4</sup> and bioethanol from non-EU countries<sup>5,6</sup>. Thus, the increase of biofuel use within the EU leads to greater impacts on the agricultural landscape in extra-territorial sites. The EU's leading role in environmental policy, implies that it has a greater normative power in shaping sustainability formulation (Afionis et al., 2012).

The current focus of the EU in the biofuel debate lies on adjustments concerning the ILUC debate. On the 17<sup>th</sup> of October 2012, the EC introduced a proposal for amending the RED, limiting food-based biofuel crops to 5% of the biofuel use by 2020 (EC, 2013). The European Parliament (EP) adopted the amendments with certain suggestions for changes in September 2013. However, the meeting of the European Council of ministers for energy in December 2013, failed to reach any agreement on the amendments, as the cap on food-based, first generation biofuels, was considered as being too high. The failure implies that no further decisions will be taken before the European

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3 This is why the focus of my thesis will be on the policy dimension of biofuels.

4 Biodiesel forms the largest part of biofuels with 75% (EuroStat, 2010). Bowyer estimates that by 2020, 36% of biodiesel will need to be imported from abroad (2010).

5 The major biodiesel providers outside of the EU are Argentina with soy biofuel and Indonesia with palm oil, exporting 9,7% and 6,6% of biodiesel respectively into the EU (EuroStat, 2010).

6 However, the recently introduced anti-dumping duties by the EC for Argentinian and Indonesian biodiesel, might have an impact on changing the quantity of imports. It is argued that the latter two countries have kept the prices of biodiesel artificially low, in order to have an advantage in the EU biofuel market. This however, has been understood as harming the domestic biodiesel market (EC, 2013). Argentina has taken the EU's anti-dumping measure to the dispute settlement body of the World Trade Organization (MercoPress, 2014).

elections in May 2014. This could imply that the debate could be adjourned until 2015 (IEEP<sup>7</sup>, 2013).

However, what has been widely neglected in the current debate of the EU on biofuels, is the overall conceptualization of the EU's sustainability understanding on biofuels. Most of the debate within the EU is centered around land use change (LUC) and related greenhouse gas (GHG) emissions. Even though water use is crucial for biofuel production, literature on the connection between the hydrological cycle, biofuel production and the RED sustainability criteria have been limited (Klocker, 2012). Therefore in this thesis the link of water issues in relation to the limited scope of sustainability criteria will be highlighted. Analyzing the policy-making process of the EU, will help to exemplify how GHG accounting has neglected other social and environmental aspects. Using discourse analytical tools will contribute to comprehending the deadlock of the biofuel debate. It is crucial to delineate underlying discursive frameworks of environmental policies in order to comprehend their understanding of sustainability.

## 1.2 Aims and Research Questions

I pose the following research questions to guide my study:

### Main research question:

How does the EU conceptualize sustainability based on the RED biofuel sustainability criteria and what underlying discursive strategy can be delineated from it?

**Table 1.** Research Sub-Questions for my thesis. They help to structure my thesis analysis and the purpose column describes more in-depth what approach I am taking to answer the question and why it is relevant.

Research sub-questions	Purpose
1. How does the EU define biofuel and sustainability criteria in terms of greater sustainability paradigms & typologies?	To analyze the RED policy based on concepts such as ecological modernization, weak, critical and strong sustainability. In order to understand the underlying sustainability definitions.
2. What does the example of water grievances in Central Kalimantan (Indonesia) imply for the sustainability understanding of the RED sustainability criteria?	To identify the role of water issues in biofuel cultivation, based on the example of Kalimantan, in order to widen the understanding of biofuels and sustainability criteria. A study of the Stockholm Environment Institute is used as basis.
3. How can a dominant discursive strategy in terms of sustainability criteria be delineated by analyzing the policy process from the RED to the ILUC amendments?	To deconstruct a dominant discourse within the policy-making process and link it back to the neglect of water issues of biofuel cultivation. Argumentative Discourse Analysis is used as a method.
4. What does the policy process play for a role in shaping the policy formulations of the RED and the ILUC amendments?	To delineate the role that discursive power struggles have on defining or limiting policy-making.

7 Institute for European Environmental Policy

For the first question, the concept of weak, strong and critical sustainability will be introduced in order to be able to apply these typologies to the sustainability criteria of the RED (see Table 1). The directive will be placed within the realms of Ecological Modernization Theory (EMT). Following the application of the different sustainability typologies to the sustainability criteria, the example of palm oil production in Central Kalimantan will be outlined. The focus will be on the water grievances of the communities in the region. The latter example will serve as the starting point for the analysis of the limitations of the RED's sustainability criteria. Focusing on the formulation of the directive as well as using qualitative interviews, I will argue that a dominant GHG accounting discourse has been underlying the RED sustainability criteria. This will be emphasized by looking at the policy process and the power struggle of different discursive strategies. Lastly, it will be examined what the implications of a limited sustainability are for the case of Central Kalimantan, introducing the concept of placelessness.

## **2 Biofuels and the Renewable Energy Directive**

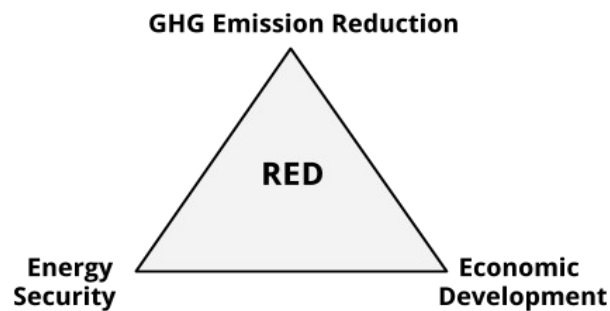
The EU denotes its sustainability criteria as being the “most comprehensive and advanced binding sustainability scheme of its kind<sup>8</sup>. (EU, 2010, p.8)”. Within international environmental policy, the EU is often considered as a leader in policy formulation (Vogler, 2003). The treaty establishing the European Community (TEC) also incorporates environmental concerns as a core issue, defined in Article 175 of the TEC. It states that the EU should engage in “promoting measures at the international level to deal with regional or worldwide environmental problems (TEC, Article 175).” Thus, part of the EU policy-making identity is based on its understanding of being a forerunner for environmental policy-making, meaning that sustainability should be incorporated in every policy (Baker, 2006). Afionis and Stinger suggest that the EU has developed into a normative power within the realms of environmental policy-making (2012). This implies that the EU has an influential role in defining environmental problems and determining possible solutions to these problems.

The first step towards biofuel in the EU was the introduction of a biofuel directive by the EU in 2003. The latter included relatively modest, non-binding objectives for the introduction of biofuels (EC, 2003). This set the stage for including a binding target for biofuels within the RED in 2009. Within climate change policy the transport sector is considered as a crucial sector that needs to be transformed. It is estimated that the transport sector alone is responsible for over 20% of the GHG emissions of the EU (Carlos & Pacini, 2013). The three main drivers for the RED can be understood as a 'tripod' trying to tackle GHG emissions, increase energy security and independence, as well as

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8 “It will apply equally to domestically produced and imported biofuels and bioliquids” (EU, 2010, p.8).

ensuring economic development (see figure 1).



**Figure 1.** The Tripod of the RED. It is based on the EC RED (2009) formulation and exhibits the three main justifications for the introduction of the RED. The figure was developed by myself during the research phase.

The main reasons for choosing biofuels, were that the technology<sup>9</sup> was already available, that it was seen as promising for the agro-industry<sup>10</sup> and would contribute to a quick reduction in GHG emissions in transport.

Due to the set targets, the introduction ensured that investment in the sector would be profitable for a longer time period. However, at the same time the EU also had to acknowledge that imports of biofuel from extra-territorial countries would be necessary<sup>11</sup> (EC, 2009). Today the capacities of domestically grown biofuels are partly exhausted, while the import of biofuels amounts to 36,1%<sup>12</sup> (EC, 2013). Hence, the introduction of biofuels in the RED has to be considered to have an impact on the global biofuel industry. Main exporting countries, such as Indonesia have included the development of biofuel plantations into their economic strategy for the coming decade (BWI<sup>13</sup>, 2011). In Table 2 an overview of the sustainability criteria is outlined.

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9 Germany has been using rape biodiesel in transport since the 1990's, therefore infrastructure was already existent.

10 It was understood that it would help to diversify the income range of agricultural production

11 As the EU notes in the RED (16) p. 18 "it is both likely and desirable that the target will in fact be met through a combination of domestic production and imports."

12 Although as mentioned before, the anti-dumping regulations of the EU might have an impact on lowering the overall amount.

13 Business Watch Indonesia

**Table 2.** Article 17 of the RED “The Sustainability Criteria” (EU RED, 2009). The Articles listed in bold are the binding ones, while the last one only implies reporting. The table was developed by the author.

Article 17 of the RED	Sustainability Criteria
<b>Article 17 (2)</b>	The greenhouse gas emission saving shall be at least 35%. With effect from 1 January 2017 it shall be at least 50%. From 1 January 2018 it shall be at least 60% (installations in which production started on or after 1 January 2017). <sup>14</sup>
<b>Article 17 (3)</b>	Biofuels taken into account shall not be made from raw material obtained from land with high biodiversity value. Namely land that had the following status in or after January 2008: - primary forest (no clearly visible indication of human activity) - areas designated by law (nature protection, rare or threatened ecosystems and species) - highly biodiverse grassland
<b>Article 17 (4)</b>	Biofuels shall not be taken from raw material obtained from land with high carbon stock. Namely land that had the following status in or after January 2008: - wetland - continuously forested area - land spanning more than one hectare with trees higher than five meters and a canopy cover of 10% to 30%
<b>Article 17 (5)</b>	Biofuels shall not be taken from raw material obtained from land that was peat land in January 2008. Unless it can be proven that no drainage of previously undrainaged soil was included.
<b>Article 17 (6)</b>	Agricultural raw material cultivated in the European Community should follow the standards set under the Environment requirement and the common agricultural policy.
Article 17 (7) (non-binding; reporting measure)	The Commission shall, every two years report to the European Parliament and the Council, in respect of both third countries and Member States that are a significant source of biofuels, on national measures taken to respect the sustainability criteria set out in paragraphs 2 to 5 and for soil, water and air protection.  The Commission shall, every two years, report on the impact on social sustainability in the Community and third countries. It should include the availability of foodstuffs at affordable prices, address development issues, labor and land rights

Nevertheless, NGOs and scientists continue to voice criticisms, claiming that the biofuel policy will threaten food security<sup>15</sup> and increase GHG emissions (Lam, 2009). Based on this criticism the concept of Indirect Land Use Change (ILUC) gained greater support. It implies that next to direct land-use change leading to negative environmental effects, ILUC may further undermine the positive effects of biofuel use. Thus, if land is not being directly converted for biofuel plantations, it might

<sup>14</sup> Different GHG saving techniques in the production of biofuels are also incorporated in the calculations and address practices such as methane capturing or soil carbon accumulation. Second generation biofuels, which are based on lignocellulosic biomass, implying that they are made out of agricultural residues or waste, obtain double counting in GHG emission saving terms.

<sup>15</sup> Due to increased pressure on arable land availability.

displace former agricultural practices to other land that therefore needs to be converted.

The EC responded by inquiring a report on the ILUC effects and announced a suggestion for addressing the issue by December 2010 (Article 19 (6)) (EC, 2009). After acknowledging ILUC as a problem for biofuels, the EC introduced a suggestion for amendments on the RED in October 2012. The amendments focus on the GHG emissions that might arise from ILUC and suggests to limit the use of food-crop based biofuels to 5 % by 2020. Furthermore certain types of ILUC modeling are considered for implementation, calculating the carbon debt and respective GHG emissions.

In September 2013, after continuous debates in the European parliament<sup>16</sup>, the parliament passed the amendments with minor changes to 5,5%. (EP, 2013). In December 2013, the meeting of the Council failed to reach an agreement on the amendments. The decision has been adjourned<sup>17</sup>.

### 3 Methodology

#### 3.1 Epistemological and Ontological Considerations

The epistemology of my thesis is based on interpretivism<sup>18</sup>. It is based on the idea that social interactions are based on the creation of common meaning, entailing certain norms and values (Bryman, 2012). Rather than combining interpretivism with the qualitative ontology of constructivism, I will follow the ontology of critical realism (Bryman, 2012). It upholds that there is a reality, existing independently of the human consciousness. Thus, implying that there is a single truth out there (Flowers, 2009). However, critical realism recognizes that knowledge is socially created, which connotes that reality is shaped by social interactions and interpretations. Hence, the social conditioning of knowledge implies that reaching the absolute truth is impossible (Maxwell, 2012). In that sense critical realism is also compatible with epistemological approaches such as interpretivism<sup>19</sup>. The reason for choosing critical realism for my thesis is that it accommodates for the research endeavor of understanding the underlying sustainability conception of the EU. At the same time, it does notice that certain explanations are more plausible or closer to the truth, than others. Therefore, an interpretation of what could be true is crucial for understanding complex processes (Mc Call, 2005). This is especially important for the undertakings of sustainability science, as environmental degradation is measurable<sup>20</sup> and should be perceived as a severe concern (Huckle,

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16 Between the environment committee (ENVI) and the industry, research, telecoms and energy committee (ITRE).

17 Given the European elections in May, the decision might be adjourned until the year 2015.

18 Implies an underlying interest in the point of view of the interviewees and the documents analyzed.

19 Critical realism is often used to combine interdisciplinary research, it makes use both of natural science as well as social science in order to explain, understand and observe. This is also why critical realism is perceived as a bridge between constructivism and positivism (Bryman, 2012).

20 Critical realism allows for using measurable techniques, while at the same time recognizing that these

2004). Basing the research on this ontology will ensure that my criticism towards a dominant environmental discourse, does not imply that the related GHG focus is solely socially constructed<sup>21</sup>. Natural scientific findings that explain environmental degradation, should therefore not be neglected and combined with social scientific endeavors.

### 3.2 Methods & Data Collection

Since my aim is to understand and analyze the underlying sustainability conceptualization, I will base my research on a qualitative approach. Resources, including policy documents, relevant academic literature and in-depth semi-structured expert interviews are used as data. The first part of my thesis is based on the policy document analysis of the RED and its linkages to ecological modernization, weak, critical and strong sustainability. The second part of the thesis starts off with a short example of palm oil cultivation in Central Kalimantan, and the related water issues. The field study of the Stockholm Environment Institute together with expert interviews, will serve as data for this section. Following this example, a combination of literature review, qualitative interviews<sup>22</sup> and Argumentative Discourse Analysis<sup>23</sup> will help to pin-point the policy-making process of the EU. The research is based on purposive sampling of interviewees, to determine important stakeholders in the field, who have an understanding of the topic, as well as influence on the decision-making process (Bryman, 2012). In total 5 Interviews were held with a representative of the European Commission, a representative of the ENVI committee of the European Parliament, a representative of the ITRE committee of the European Parliament, a representative of the IEEP and a researcher of the Stockholm Environment Institute. A limiting factor for conducting the interviews, was the low response rate of contacted potential interviewees possibly due to time constraints of selected interviewees and the upcoming EU elections<sup>24</sup>.

### 3.3 Limitations

In this thesis I focus on the policy-definition process and therefore leave out the implementation stage of the RED. Thus, the practical approach towards ensuring the sustainability criteria set by EU through the use of national schemes and voluntary certification schemes will not be touched upon<sup>25</sup>.

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measuring techniques are man-made and can therefore be subject to defaults.

21 In the following analysis I will argue that singling out GHG emission saving without accounting for other important environmental safeguards is dangerous. However, I do not argue that GHG emission saving itself is a solely socially constructed concept.

22 The interviews were guided by semi-structured open-ended interview questions, in order to give the interviewee enough space to express their understandings and framing of the issues (Bryman, 2012).

23 Developed by Marten Hajer (1997), will be further elaborated within the theoretical framework section. Including the 10 steps of Argumentative Discourse Analysis.

24 However, the interviews are only used for a part of the analysis and focus more on in-depth understanding.

25 It is acknowledged that voluntary certification schemes such as roundtables could play a role in further



The focus will be limited to the EU's policy formulation of the sustainability criteria, emphasizing the normative and discursive power that this has on the definition of the criteria<sup>26</sup>. The water grievances<sup>27</sup> in Central Kalimantan are only briefly outlined and function as an example to visualize the limitations of the criteria. More research is needed in the field of water management and biofuel cultivation with a link to the EU. The Indonesian government policies towards water management are also left out. Other environmental and social safeguards, which are important for biofuel production, such as air, soil and labor and land rights are also left out. However, this does not imply that these factors are of less importance, than the water issue<sup>28</sup>. Within the the analysis I also had to limit the examples for discursive strategies to the most important ones, which simplifies the Argumentative Discourse Analysis<sup>29</sup>. Since the documents and contact availability to the European Parliament was more transparent and accessible, the focus is more on the policy discussion within the European Parliament than the EC. Additionally, my thesis focuses only on the first-generation biofuels, also termed as food-crop based biofuels. Therefore the discussion on second-generation biofuels<sup>30</sup> is not being considered.

## 4 Theoretical & Conceptual Framework

### 4.1 Discourse Theory from Foucault to Hajer

In my thesis I will make use of discourse theory, in order to analyze the policy-making of the EU. According to Foucault, a discourse creates a certain 'world' within which thoughts and ideas are rendered possible<sup>31</sup>. This entails that a discourse builds a framework, within which norms and values, as well as rules are produced. Consequently, a discourse defines the limits of possible thoughts and interaction, implying powerful constraints. Foucault emphasized the link between discourse and power<sup>32</sup> and the necessity to analyze discourses based on these influences (Foucault, 1976). He maintains that within society one can therefore outline specific discourses that have established

developing sustainability criteria that are more advanced.

26 This implies that understanding the way a policy is formulated, explains the discursive framework and the boundaries. The way sustainability is framed entails an underlying normative understanding.

27 As will be mentioned later, this entails a decrease in the availability of water in the river basins close to the communities, a pollution of the water through POME and nutrient leaching, leading to skin infections, as well as a decrease in agricultural practices in the region due to the scarce and polluted water sources.

28 It should rather be understood as one example for outlining the limitations

29 Usually ADA requires an in-depth analysis of all discursive practices that occurred in the policy-making phase. Since the access to information on this process is limited to a few interviews and official documentation, the ADA method is reduced in the realms of the thesis.

30 Second-generation biofuels are mostly based on residues and waste

31 In other words it is "a group of statements which provide a language for talking a way of representing the knowledge- about a particular topic at a particular historical moment" (Foucault in Hall, 2001, p.44)

32 For Foucault discourse is one of the most strongest forms of dominance as it structures thoughts, understandings and values (Foucault, 1980).

themselves as dominant. A dominant discourse has acquired greater consensus and support of powerful agents within society, representing the status quo<sup>33</sup>. Hajer has taken Foucault's theory as basis for his analysis of discourses within the policy-making process<sup>34</sup> (Hajer, 1997).

The definition of discourse I use, is based on Hajer's understanding as "an ensemble of ideas, concepts, and categories through which meaning is given to the social and physical phenomena and which is produced and reproduced through an identifiable set of practices<sup>35</sup>" (2005, p. 300). Hajer's focus lies on deconstructing how a particular discursive structure comes into place within the decision-making phase of policy debates. For this process Hajer denotes two stages, the first being discourse structuration and the second discourse institutionalization (Hajer, 1997). Discourse structuration implies that a greater mass of people use a particular discourse in understanding a particular issue. When this stage of a discourse is reached, a possibility for institutionalizing a discourse becomes possible. This entails that the dominant discourse is translated into actual rules, such as policies by particular institutions. However, in order to maintain an institutionalized discourse it needs to be continuously reproduced by powerful stakeholders in the institution (Hajer, 2005). Hajer groups the different discourses into discourse coalitions, which are characterized by stakeholders sharing common interests and narratives. This discourse coalition approach bears certain advantages as it outlines the analysis for strategic action in institutional practices and offers analytical tools for detecting discursive struggles. It further helps to discover how actors use discursive strategies to reproduce the institutionalized discourse (Hajer, 1997).

#### **4.1.1 Argumentative Discourse Analysis**

Hajer suggests the use of argumentative discourse analysis<sup>36</sup> (ADA). The focus of ADA lies more widely on what is being said, by whom in terms of argumentation. The use of ADA serves to uncover particular discursive regularities that are apparent in political debate. The analysis focuses not solely on the linguistic structure but much more on analyzing politics with distinct discursive argumentation. Understanding the underlying structure and beliefs within arguments, helps to uncover the origin of the argumentation<sup>37</sup>. The "argumentative turn" within policy analysis occurred in the beginning of the 1990ies unveiling policy-making as value laden, emphasizing the role of language, rhetoric, meanings and norms (Fischer & Forester, 1993). It is therefore crucial to explore the underlying

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33 However, discursive powers are mostly occurring on a sub-conscious level, implying that agency of shaping a discourse consciously is rather limited.

34 His focus has been on analyzing environmental policy discourse, such as the acid rain debate (Hajer, 1997).

35 Hajer's approach is much more practice-oriented and distinguishes itself from the relativistic tendencies of Foucault's concept of the discursive struggle between dominant and alternative discourses (Palmer, 2014).

36 A discourse analysis distinguishes itself from a narrative based on the fact that a discourse analysis entails certain regularities. These regularities create a certain structure of politics (Hajer, 1997).

37 In that sense argumentation lines can be rational and coherent but still be biased and limited in their scope.

understanding of the policies from a discursive perspective and delineate the controversies<sup>38</sup> in the decision-making process (Sharp & Richardson, 2001). ADA focuses particularly on the interactions in the crucial institutional policy-making arenas.

This thesis will focus on the RED policy of the EU and therefore the EU itself as a powerful set of institutions and Brussels as the center of policy-making is considered. I will analyze the influential role of the EU on constructing and maintaining dominant discourses within the biofuel debate. For the methodological approach to ADA, Hajer has formulated a 10 steps approach for empirical data collection. I mostly followed these steps in empirical data collection and analysis, in order to delineate a dominant discursive strategy in the EU RED biofuel policy (as seen in table 3).

**Table 3.** Hajer's Argumentative Discourse Analysis Approach. It visualizes the 10 steps towards constructing an Argumentative Discourse Analysis. The table has been developed by the author.

<b>10 Steps for Argumentative Discourse Analysis</b>
<b>1. desk research</b>
<b>2. helicopter interviews</b>
<b>3. document analysis</b>
<b>4. interviews with key players</b>
<b>5. sites of argumentation</b>
<b>6. analyze for positioning effects</b>
<b>7. identification of key incidents</b>
<b>8. analysis of practices in particular cases of argumentation</b>
<b>9. interpretation</b>
<b>10. second visit to key players</b>

Due to the scope and the time constraint, step 2 and 4, taken from the table, were combined. The last step of a second visit to key players was left out. The outcome of the 10 steps applied to the RED can be found in the following analysis section.

**4.2 Typologies of Sustainability**

From utopian community projects to large scale industry players, all claim to be sustainable (Hopwood, 2005). The notion of sustainable development was brought to fame in 1987 by the

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<sup>38</sup> understood as a struggle between different discourse coalitions, who compete in framing a certain issue in the policy-setting stage (Durning, 1995)

Brundtland report *Our Common Future* (Hopwood, 2005).<sup>39</sup> However, the Brundtland report's definition was kept broad and opened up the floor for a great variety of interpretations of sustainable development (Carter, 2007). In order to reduce the vagueness, different typology strategies have been introduced by sustainability scientists. These typologies help to uncover the sustainability ontologies of different kinds of policies (Faran, 2010). For sustainability practitioners it is crucial to keep these typologies in mind when analyzing sustainability issues. The inherent question for analysis is thus, what needs to be sustained<sup>40</sup>?

#### **4.2.1 Ecological Modernization Theory**

Ecological modernization theory<sup>41</sup> has developed into a popular framework for environmental policy-making in industrialized countries (Baker, 2008). The idea is that in order to overcome current environmental deterioration the path of “super-industrialization” and “hyper modernity” should be taken<sup>42</sup> (Huber, 1985). A win-win scenario is achieved by having industry internalize the environmental costs of production, improving the technologies of production and therefore minimizing environmental damage (Mool & Spaargaaren, 2000). EMT emphasizes socio-technological fixes for environmental problems, which can be reconciled with economic development. Rather than transforming economic market structures, it focuses on solutions from within the current economic system. Governments are an important stakeholder in fostering EMT, rather than introducing strict enforcements, they create a regulatory framework that incentivizes development and ensures private sector investments.

Since EMT is based on incremental changes and socio-technological fixes, it has been taken gradually as the basis for environmental policy making (Orsato & Clegg, 2005). However, certain critics<sup>43</sup> voiced that it has softened the definition of sustainability, in order to make it more easily applicable to existing economic structures (Hannigan, 1995). It relies on socio-technological fixes and is therefore limited in allowing for transformative solutions.

Next to EMT, weak, strong and critical sustainability are of additional help to analyze current environmental policy understanding. In the following section the three are outlined and a parallel is drawn to EMT.

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39 The report defines sustainable development with “meeting the need of the present without compromising the ability of the future generations to meet their own needs”(Brundtland report, 1987, p. 13).

40 Every environmental policy has a certain core definition of what needs to be sustained.

41 The latter is a concept that has arisen in the 1980ies, falling into the same time period as the publication of the Brundtland report (Mol, 2000).

42 The EMT has to be understood as a counter argument to the Western European environmental movements from the 1970's, demanding a demodernization or deindustrialization (Spaargaaren & Mol, 1992).

43 These critics see the technological optimism of EMT as limited, arguing for a more profound understanding of sustainability, that incorporates transforming institutions and social norms (Mols & Spaargaaren, 2000).

### **4.2.2 Weak sustainability**

Weak sustainability can be closely linked to the theory of ecological modernization. However, Faran points out ecological modernization, contrary to weak sustainability, envisions no struggle between the economy and ecology (Faran, 2010). The vague definition of sustainability in the Brundtland report formed the foundation for Robert M. Solow's concept of weak sustainability. The Nobel peace price laureate argues that the goal should be to maintain or increase the current GDP, to ensure wealth for future generations (Solow, 1993). His reasoning makes use of the capital theory approach, which entails that a country's GDP can only be upheld if the same level of capital stocks is kept. In that sense, natural capital and other forms of capital have the same value and can be continuously substituted. Depletion of natural resources is acceptable, if the transformation of natural capital into other capital is carried out efficiently and produces only little waste. Secondly it's accepted if the depletion of natural capital compensates for the loss through an overall increase in welfare of future generations (Solow, 1993).

Transforming natural capital into manufactured capital is termed as the concept of substitutability. It explains why Solow's interpretation of sustainability has been termed as weak sustainability, as it does not entail a commitment of protecting the environment in itself (Faran, 2010). Consequently, the tools for weak sustainability rely on cost-benefit analysis, through market mechanism and adjusting prices accordingly. Natural resources are valued in monetary terms, in order to exchange them into other forms of capital. Methods such as green accounting or privatization of ecosystems are widely applied in policies and companies. Weak sustainability is often ascribed to the school of environmental economics<sup>44</sup> (Pearce, 1993). The main criticism towards this approach is that the commitment to sustainability is weak<sup>45</sup> and mainly interpreted in terms of economic choice.

### **4.2.3 Strong sustainability**

In contrast to weak sustainability, strong sustainability entails a "stronger" commitment to natural resource protection. Hermann Daly, perceived as the founder of strong sustainability, maintains that a perfect substitutability is not possible, converting natural capital into other forms of capital (2005). Opposing Solow, Daly argues that maintaining the current stock of natural resources is also important, in order to ensure human welfare (Costanza, 1997). Hence, natural capital needs to be maintained for its own purpose, rather than just for economic use<sup>46</sup>.

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44 David Pearce can be understood as a pioneer of environmental economics, trying to assign negative prices to environmental deterioration. This has also been called the "polluter pays" principle (Pearce, 1993).

45 In the sense that it does not account for valuing natural resources for its own sake.

46 Faran argues that even an over-exploitation of resources that are renewable should be averted (2010).

Instead of pursuing an environmental economics<sup>47</sup> approach, strong sustainability applies the rules of ecological economics, attempting to transform the economic structure for the sake of ecology (Daly, 2008). It is characterized by trying to maintain a steady state economy or zero growth economy and also hosts approaches to a degrowth economy (Daly, 2008). Strong sustainability perceives the economy as being embedded within the environment, rather than being in separate spheres. However, the interpretation of strong sustainability varies greatly and can be quite close to weak sustainability with stricter discount rates and ecosystem assessment, up to an interpretation that allows for no substitution of the natural capital. Strong sustainability in its strictest definition can also be closely linked to deep ecology<sup>48</sup>, which can limit possibilities of human interaction and solutions.

#### **4.2.4 Critical Sustainability**

Situated between weak and strong sustainability, critical sustainability allows for partial substitutability. Thus, certain natural capital is considered to be substitutable for manufacturing goods, while other is considered non-substitutable. In order to distinguish between these two categories, it needs to be assessed which ecological processes are crucial for sustaining the environment. It is argued that certain boundaries need to be identified in order to be able to define the limits of substitutability (Lerch & Nutzinger, 2002). In that sense critical sustainability accepts environmental degradation for the sake of economic production, as long as it does not fundamentally harm the environment with a point of no return. Although, theories such as the critical natural capital by Joshua Farley can also situate critical sustainability close to strong sustainability (2008). In it Farley argues that the market structure with its pricing mechanism is not able to account for the scarcity and the importance of ecosystems and its services<sup>49</sup>. He maintains that economic driven cost-benefit analysis should not be the basis for determining what should be sustained. He calls for a more critical approach to monetary modeling of nature protection.

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47 The idea behind it is to focus on quality rather than quantity, rejecting the call for continuous economic growth as it does not ensure human welfare (Daly, 2008).

48 Deep ecology values all organisms within ecosystems, stressing the interconnectedness of all living things. Human interference with other organism and transformation of these ecosystems is seen as a source for environmental deterioration (Naess, 1989).

49 The economy is unable to predict the tipping point, in order to determine how much of the natural capital can be substituted (Farley, 2008).

## 5 Analysis

### 5.1 RED & Ecological Modernization

Every policy is set within a social-economic and political context, therefore, it is necessary to assess in-depth the underlying ideas of the policy formulation and uncover the discursive focus. In the following the main justification points of the RED will be outlined.

In point (1) of the RED the EU points out that renewable resources for European energy consumption are needed in order to reduce GHG emissions. This is linked to the commitments of the Kyoto Protocol of the UNFCC<sup>50</sup>. The need for renewable energy is further related to “promoting the security of energy supply, promoting technological development and innovation and providing opportunities for employment and regional development, especially in rural isolated areas” (EU, 2009, p. 16).

In point (2), the role of transport within the renewable energy discussion is highlighted. It states in “..the transport sector, the security of energy supply is most acute and has an influence on the fuel market. Increasing technological improvements...and the use of energy from renewable sources in transport are some of the most effective tools by which the Community can reduce its dependence on imported oil in the transport sector”(EU, 2009, p. 16).

In point (3), the EU acknowledges that “The opportunities for establishing economic growth through innovation and a sustainable competitive energy policy have been recognized. ... The opportunities for growth and employment that investments in regional and local production of energy from renewable resources bring about in the Member States and their regions are important<sup>51</sup> (EU, 2009, p. 16).”

Based on these points taken from the RED policy, I analyze the underlying argumentation line and link it to sustainability frameworks. The first point situates the RED within the GHG emission debate, linking it to the compliance with the Kyoto Protocol. The EU states that there is a threat to energy security, which needs to be solved by introducing technological advancement that ensures that GHG emissions are reduced. The possibility for economic development and job opportunities is brought into accordance with this. Technology is understood as the solution to GHG emission reduction and economic development. I situate the argumentation of the first point within EMT, highlighting socio-technological fixes as a solution that brings about a win-win solution for climate change and the economy.

The second point focuses particularly on the role of transport in relation to energy use. The

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50 United Nations Framework Convention on Climate Change

51 In the amending directive suggested by the EC, the RED is summarized as having the two primary objectives of “the protection of the environment and the functioning of the internal market (EC, 2012, p. 3).”

EU depicts the consumption of conventional fuel in the transport sector as a threat to energy security, being dependent on imports. Renewable energy sources are understood as a solution, since they can be produced domestically. This introduces the third point, promoting economic development within the EU borders. Economic growth is perceived as an encompassing solution, being able to reduce GHG emissions and ensuring energy security, through renewable energy development.

Thus, like the argumentation line of EMT, the RED reasoning is that energy related issues could be solved by green technological innovation, bringing about economic development. It combines the environment and economy and portrays the combination as a win-win solution. Rather than transforming the transport sector, the RED reforms it with technological fixes, using the already existing infrastructure. Like EMT, RED policy is seen as a mechanism to combine economic development with environmental policy, setting a frame for green economic growth. It ensures a stable investment climate for the agro-industry and pushes for domestic development of technologies<sup>52</sup>. The use of biofuel has mainly been driven by policies on the EU level and is therefore another argument for EMT, putting a greater stress on policy-induced changes within the economy.

Assessing the RED's overall justification, I therefore argue that it is placed within EMT. Criticism towards this approach could be that since the RED is set within an EMT framework, the policy solutions towards the transport sector and biofuels are limited. Since biofuels can be seen as technological fixes, the greater infrastructure of the transport sector is not being questioned. Rather than transforming the transport sector, or aiming to reduce fuel consumption<sup>53</sup>, the proposed solution is merely a replacement of conventional fuels (Mol & Spargaaren, 2000). The role of the EU is to ensure that economic development is changed through green technology, rather than considering policies that would change the infrastructure of the sector more intrinsically. Having analyzed the overall justification line wherein the RED is embedded is helpful in order to understand wherein the sustainability criteria are placed in.

## **5.2 The Sustainability Criteria and Typologies of Sustainability**

Even though the RED biofuel policy is mainly set within the EMT paradigm, the EU acknowledges that biofuels can also be harmful to the environment. In that sense rather than just seeing a win-win scenario for biofuels from an EMT perspective, negative externalities of biofuel production are acknowledged. Therefore, it is necessary to assess the sustainability criteria<sup>54</sup> of the RED from

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52 In point 14 of the RED, it is stated that setting a “mandatory national target is to provide certainty for investors and encourage continuous development of technologies (EU, 2009, p. 17)”.

53 Although first steps to overall fuel efficiency increase and reduction of consumption is considered within the RED, the objectives are limited.

54 The two major objectives of the sustainability criteria (GHG emission saving of at least 35% and protection of areas with high carbon stocks and biodiversity) are both measures to counter the effect of land use



different sustainability typologies to be able to comprehend the underlying sustainability understanding. Assessing the criteria based on the parameter of weak, strong and critical sustainability will help to further denote the EU's sustainability understanding.

### **5.2.1 Typologies of Sustainability and Article 17 (2)**

The objective of article 17(2) demands biofuel producers to save at least 35% of GHG emissions in comparison to conventional fuels. This is then augmented for biofuel production taken up in 2017 with emission saving requirement of at least 50% and 60% in 2018 (EC, 2009). Article 17(2) is based on GHG accounting models and default calculations in order to determine the exact amount (EC, 2009).

Linking this article to the concepts of strong, weak and critical sustainability, it can first of all be connected to green accounting methods set within weak sustainability. Even though weak sustainability is centered mainly on sustaining human welfare, it does incorporate externalities<sup>55</sup> (Smulders, 2008). The inclusion of indicators that account for GHG emissions can be seen as a move to try to avoid the negative impacts of biofuels, minimizing the pollution throughout the production chain. Increasing the requirements of GHG savings, motivates the biofuel industry to improve production efficiency and minimize the external environmental costs, albeit still with a focus on carbon savings. It follows the argument of weak sustainability, trying to improve the ecological footprint of biofuels through GHG modeling (Solow, 1993). However, the GHG emissions are not accounted for in monetized terms.

The article might be not as easily linkable to strong sustainability, as one can question the percentage of 35% as being enough to ensure the positive impact on sustainability. From a strict strong sustainability perspective I would argue that GHG emission savings should be close to 100%, in order to ensure that the environment is protected from impacts of climate change. A softer perspective of strong sustainability, however comes close to Article 17 (2), as the GHG emission savings are not translated into any monetized system but is implemented in order to ensure the positive impact on GHG emission saving and thus the protection of natural capital.<sup>56</sup>

In terms of critical sustainability, on the one hand the 35% saving of GHG emission can

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change of biofuel production (EC, 2009).

55 These are incorporated in green accounting methods, trying to calculate environmental externalities into the economic production process. It tries to first of all calculate the externalities, such as GHG emissions. After the first step it attempts to monetize the externalities, so that it can be accounted for in economic terms.

56 Hence, the difference between weak and strong sustainability could be understood in assessing for what end the GHG emission saving of 35% is introduced. Is it in order to ensure successful biofuel economy and therefore internalizing externalities. Or is it just for the sake of protecting natural capital for its own sake, by ensuring that the GHG emission saving of biofuels will contribute to a more positive impact on climate change mitigation.

contribute to the critical part of mitigating climate change. Thus, GHG emissions of biofuel are allowed as long as they are limited. However, it might be questionable whether a 35% margin is enough to mitigate GHG emissions effectively or drastically, that measures of land conversion are justifiable to a certain extent<sup>57</sup>.

### **5.2.2 Article 17(3) (4) (5)**

While criteria 17 (2) can be seen as being between weak sustainability and critical sustainability, in 17 (3), the RED upholds that:

“raw material obtained from land with high biodiversity value...that had the following statuses. (...) <sup>58</sup>: primary forest and other wooded land, where there is no clearly visible indication of human activity and the ecological processes are not significantly disturbed<sup>59</sup>; (...)areas for nature protection purposes; (...)areas for the protection of rare, threatened or endangered ecosystems or species recognized by international agreements; (...)highly biodiverse grassland...(EU, 2009, Article 17(3), p. 37)”

...should not be converted for biofuel production purposes. In 17 (4) the RED further implies that land with the following characteristics should also be preserved:

“Raw material obtained from land with high carbon stock, namely land that had one of the following statuses<sup>60</sup>; wetlands (...); continuously forested areas<sup>61</sup>;(…)land spanning more than one hectare with trees higher than five meters and a canopy cover of between 10% and 30% (EU, 2009, Article 17 (4), p. 37).”

In 17 (5) it is stated that “raw material should not come from land that was peatland<sup>62</sup>, unless evidence is provided that the cultivation and harvesting of the raw material does not involve drainage of previously undrained soil (EU, 2009, p.37).”

Applying these criteria to the sustainability typologies, I argue that it entails features of strong

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57 So that the critical amount of GHG emissions in the air is not trespassed.

58 That had one of the following statuses in or after January 2008.

59 This vague description of primary forest and wooded land leaves a wide range of interpretation of what could be included in this category.

60 In January 2008

61 Cover of more than 30%

62 In January 2008

sustainability<sup>63</sup>. The EU recognizes that land conversion for the purpose of biofuel production can have detrimental effects on the environment. Therefore, an overarching substitutability approach cannot be accepted, if high biodiversity hotspots and carbon stock rich ecosystems are destroyed in the process.

By designating certain land as non-transformable, the points (3), (4) & (5) can be seen from a strong sustainability perspective, implying that these ecosystems are being preserved for the sake of environmental protection<sup>64</sup>. In environmental policy, the points (3), (4) & (5) are progressive, as it is one of the first binding criteria which classifies certain lands, within the EU borders as well as outside, as non-convertible (EC, 2009). However, terminology used in the articles gives reason for concern, because words such as 'clearly visible' or 'significantly disturbed' can be interpreted and defined in many different ways, undermining the preciseness. Not all land is classified as non-convertible, implying that the article might not follow a strict understanding of strong sustainability. Since the sustainability criteria are limited to LUC criteria, it might be debatable whether they classify as strong sustainability. In its strictest understanding of strong sustainability, the points (3) to (5) of article 17 are not based on strong sustainability. However, in a more diluted interpretation of strong sustainability, the points could be seen as intending to follow the lines of the typology.

Nevertheless, the article does support partial substitutability, accounting for certain land to be protected while other land can be transformed. Therefore, a critical sustainability approach might be the most applicable to the article. The land that is classified in points (3), (4) & (5) is considered to have important characteristics that contribute to diverse ecosystem services and endangered species protection (EC, 2009). In that sense, the land is considered as being non-substitutable if the long-term protection of biodiversity and increased GHG emissions is to be preserved.

Summarizing this first step towards my analysis, I argue that the different binding sustainability criteria of the RED can be placed within the spectrum of weak, strong and critical sustainability. Even though article 17 (2) is closely linked to the methods of green accounting, I argue that the fact that it is not monetized suggests a stronger commitment to environmental standards. Hence, I interpret the article as being in between weak and critical sustainability. While article 17 points (3), (4) & (5) incorporate tendencies of strong sustainability, it does also contain features of substitutability. I find that it is closer linked to identifying critical hotspots of biodiversity and carbon storage. This is why, I claim that it is closer to critical sustainability. If one bases the analysis of weak, strong and critical sustainability solely on the binding sustainability criteria, one might argue that the criteria do represent a commitment to more encompassing sustainability. Nevertheless, given the fact

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63 The latter approach is in favor of sustaining the environmental resources by rejecting the substitutability concept of weak sustainability.

64 Even if LUC increases the production of biofuels, it is not acceptable to transform it in order to produce biofuels.

that the RED is based within the EMT suggests a first limitation to a greater sustainability understanding, which incorporates environmental protection.

### **5.3 Water Management Issue in Central Kalimantan & RED**

In the following section a short introduction to the water grievances of communities located around palm oil plantations in Central Kalimantan will be outlined. One has to understand the starting point of this example as trying to delineate, how the sustainability criteria of the EU are in fact limited.

Water use is an essential resource for the agricultural sector, using up to 40% of the total freshwater use (UNWater, 2012). Thus, the introduction of additional agricultural practices, such as biofuel cultivation, will further increase the demand for water use. At the same time the agricultural sector is also one of the greatest water polluters, which is mainly caused by nutrient leaching originating from fertilizers and pesticides (Mollinga, 2008). The following example of Central Kalimantan will help to emphasize the issues of water use linked to palm oil<sup>65</sup> production.

In a joint research led by the SEI, the impact of palm oil<sup>66</sup> plantations on the local river basin and the community was assessed in relation to the RED. Indonesia is the leading producer of palm oil, producing more than half of the total global palm oil available (RSPO, 2011). The Indonesian government has incorporated the expansion of palm oil cultivation, especially for biodiesel production, in its national economic plan. The RED has been one of the driving forces for the further development focus of the Indonesian government on palm oil production<sup>67</sup>.

Kalimantan<sup>68</sup>, is the second most largest region<sup>69</sup> for Indonesian palm oil production. Until now Kalimantan is still one of the most forested areas of Indonesia but has faced major land use change development over the past decade. Central Kalimantan hosts a growing number of palm oil plantations, with Seruyan serving as the area of focus for the example<sup>70</sup> (as can be seen in the following map 1.).

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65 Palm oil cultivation is in fact quite water use intensive, since its located within the tropical regions of Southeast Asia, a lot of it is green water. This however has also led to research concluding that green water grabbing is occurring in Indonesia (D'Odorico, Rulli, Savioli, 2012).

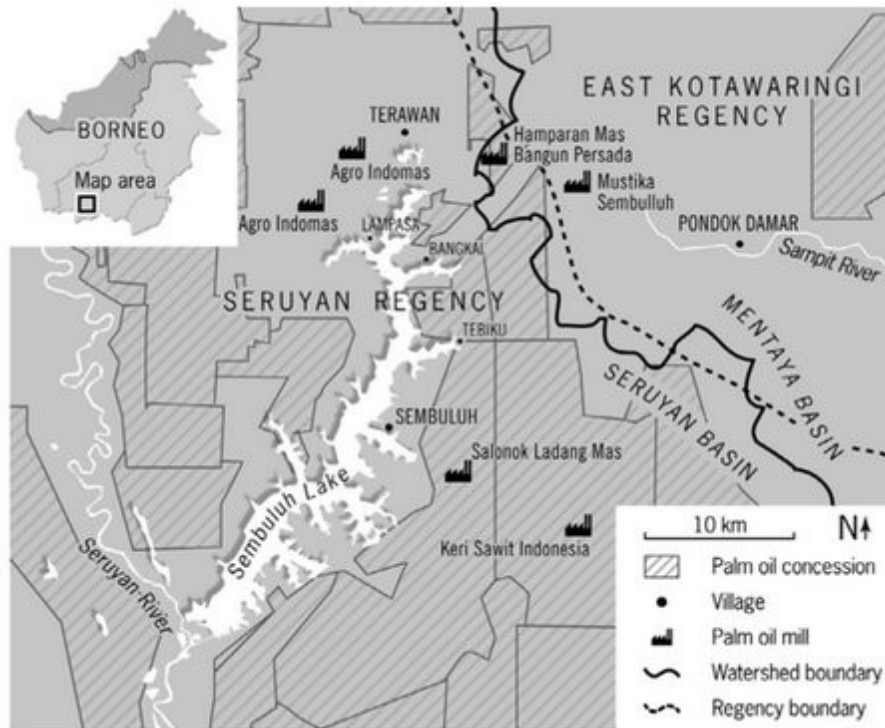
66 Palm oil from Indonesia is one of the main sources for biodiesel import to the EU with around 8% of the overall share (EuroStat, 2010).

67 As mentioned above by Business Watch Indonesia.

68 Kalimantan is the Indonesian part of island of Borneo.

69 Sumatra is the leading region for palm oil cultivation.

70 In the past decades the region has developed into a palm oil plantation focus sight.



**Map 1.** showcases the study site of the Stockholm Environment Institute in Central Kalimantan. The map was taken from Larsen et al. 2013

The communities living around the lake Sembuluh served as study group for Klocker et al. (2013). The researchers found that the communities, as well as the surrounding ecosystems were “suffering under severe water grievances (Personal Communication, SEI, 24.03.2014).” The findings suggest that palm oil cultivation has contributed to water decrease in the surrounding rivers, as well as a serious water pollution. The latter is mainly influenced by the palm oil mills, which is caused by the palm mill oil effluent<sup>71</sup> (POME).

The nutrient leaching that occurs from excessive use of fertilizer and pesticides for palm oil cultivation is another important source for water pollution. This in turn has detrimental effects on the surrounding ecosystems, on the community’s health, as well as on agricultural production. From the pollution and water stress, biodiversity is decreasing and the plantation of rice has been undermined as the polluted water minimizes the harvest and intoxicates the food. Lastly, the communities in Sembuluh and Pondok Damar have reported an increase of skin diseases, as well as complaints related to digestion. First water tests have proven a greater amount of POME in the river basins. Palm oil cultivation requires a high amount of water, thus next to precipitation the river basins are used as a source for irrigation. The stress on water quantity and quality has minimized the possibility for the local communities to harvest their own rice. Since some of the land can no longer be used as source

<sup>71</sup> The oily waste water consists of different suspended components and can be very damaging to soil and water.

of income and food, the communities have become more dependent on the surrounding palm oil plantations. Many of the palm oil plantation workers were local farmers before, while their old land has been bought by the palm oil producing companies.

This short example of palm oil production in the Seryuan regency showcases how water grievances can be seen as challenging the sustainability of palm oil production. Not all palm oil produced at the site is transformed into biofuel and exported to the EU. Nevertheless, it serves as a good example of the additional pressure that biofuel demand can have on the palm oil production. The production of biofuel outside of the EU is particularly important to assess, as other regulations implemented by the EU, such as the water framework, do not apply<sup>72</sup>. The question of what is currently neglected within the RED sustainability criteria has therefore important implications on the reality of ecosystems and communities abroad.

#### **5.4 Dominant Discourse and the Policy-Making Process**

From a more critical sustainability lense, the criteria have been defined in a limited sustainability understanding. Water issues arising out of biodiesel production are not bindingly addressed within the RED. To comprehend the limitation of the sustainability criteria formulation, I will assess the role of the EU policy process in shaping an underlying dominant discourse. Highlighting a discursive focus of the sustainability criteria will establish the fine line of what is possible and what is neglected within the framework. The RED sustainability criteria, as well as the decision on ILUC amendments have to be understood as the outcome of distinct debates within the policy-making process. The discussion on the ILUC amendments in the EU are an important link to the RED sustainability criteria, as it helps to emphasize how the discursive strategies have been reproduced and shaped the understanding of the concept.

##### **5.4.1 Sustainability Criteria revisited**

My analysis of the sustainability criteria has shown that the three binding points of Article 17 (Article 17(2), 17(3), 17(4)) focus on GHG emission saving, on the protection of biodiversity rich landscapes with a special focus on forests and land with high carbon stocks. For the article 17 (2) a specific value of saving at least 35% of GHG emissions, in order to calculate the exact emission saving<sup>73</sup>.

For article 17(3) and 17(4) concerning specific land types, the EC bases its land categorization

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72 The EU did commission first reports on the biofuel impact on water use domestically and abroad such as the AETS consortium, 2013 and the ECOFYS report, 2013. However, no answer or reaction was issued by the EC. This will be further elaborated on in the following analysis part.

73 Next to the actual calculations, the EC has also introduced default values for the different types of biofuel feedstocks to facilitate the GHG accounting process (EC, 2009).

on the ones from the IPCC<sup>74</sup>. In comparison to the article 17(2), specific categorization and actual geographical designation of protected land are not as clearly stated and outlined. The classification of these different land types leaves room for different ways of interpretation. Aspects related to the agricultural practices, including air, soil and water, are addressed in article 17 (7) with the requirement of biannual reporting on the impact of biofuel production. The latter article also includes social safeguards which address labor and land rights issues.

With the water example in mind, I found that re-analyzing the sustainability criteria puts a strong emphasis on GHG and biodiversity measuring. This delineates a distinction between the first three articles of the sustainability criteria, which have a binding character focusing on GHG emissions, carbon stock rich land and biodiversity reservoirs and the additional social and environmental safeguards requiring only reporting. While it seems that GHG modeling is described more in detail in the RED, than the specific requirements for biodiversity protection. Article 17(2) is one of the most important aspects of the RED sustainability criteria, as it justifies the argumentation that GHG emissions are being reduced through the use of biofuels. It supports the reasoning that a sustainable use of biofuels ensures that the EU complies with the objectives set in the Kyoto protocol. Based on this understanding, article 17(2) is an important argumentative tool of the EC to support its justification for using biofuels as a solution to the transport challenge. With article 17 (2), (3),(4) & (5) the EU tries to avoid negative impacts of LUC. However, considering the water grievances, one can start questioning the sustainability criteria. In fact, the sustainability criteria focus more on prior land conversion, than sustainability issues that might arise out of the present and future cultivation of biofuels.

#### **5.4.2 Prior to the RED**

To be able to examine the discursive strategies that have occurred from the RED policy-making process up to the ILUC amendments debate, I assess it on the basis of power struggles. Prior to the implementation of the RED, NGOs from the global South criticized the sustainability of biofuels for their threat to food security (Levidow, 2013). The debate on biofuel policy within the institutions of the EU acknowledged the need for incorporating sustainability criteria. The independent Cramer Commission, the Low Carbon Vehicle Partnership as well as the Roundtable on Sustainable Biofuel defined 7 important sustainability factors needed for biofuel cultivation: carbon, soil, biodiversity, water, air, labor rights and land rights (Cramer et al., 2007). The Environment Committee (ENVI) of the

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74 Only the land that had the status of primary forest, protected land, highly biodiverse land or wetlands and continuously forested land (cover at least 30%) in January 2008, is prohibited to be converted. Thus, land that has been converted prior to the date is accepted for biofuel cultivation (EC, 2009).

European Parliament (EP) took up the 7 criteria defined by the Cramer Commission and addressed the suggestion of the EC for sustainability criteria:

“At that time we thought the suggestion by the EC was a starting point for defining sustainability criteria. However, we tried to make clear that it was only the start and that from there we needed to take a step to have broader criteria for sustainability (Personal Communication, ENVI representative, 09.04.2014).”

Nevertheless, shortly after the support for the Cramer Commission criteria was voiced, representatives from the ENVI committee took a step back. The position paper on the APC-EU Energy Facility thus argued:

“These directives do not include mandatory social criteria, or food security criteria, because of the difficulty to verify the link between individual biofuel consignments and the respect of these particular criteria “(EuropeAid, 2009).

These findings point towards a change of position concerning sustainability standards. At the beginning, a more encompassing understanding of sustainability criteria was envisioned by stakeholders within the EU as well as NGO representatives. The ENVI committee of the EP became a key player for the support for more encompassing sustainability criteria. Within the EC the discussions that had taken place prior to the ones in the EP, were also characterized by heated debates within and between the different Directorate Generals (DG), struggling to minimize or enhance the scope of the sustainability criteria (EC, April 2014). Water use issues were originally accounted for by different stakeholders, such as the ENVI committee or the DG Environment (Personal Communication, IEEP researcher). Social safeguards in relation to water issues, as well as labor rights and land rights were supported by the ENVI committee (Personal Communication, ENVI representative).

However, even though the ENVI committee did support more encompassing sustainability criteria at the beginning, the representatives had to acknowledge that there was no space for this understanding in the RED. From the ADA perspective this implies that a group of stakeholders, Cramer Commission and ENVI, used discursive practices<sup>75</sup> to widen the definition of sustainability criteria. By holding meetings and voice support for the Cramer Commission, the ENVI committee tried to gather support for broader sustainability criteria. Nevertheless, it was not influential enough

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75 At that stage the ENVI committee together with NGOs and the Cramer Commission, formed a discourse coalition with a shared discursive strategy.



to shape the discourse structuration on the criteria. Representatives in the DG Energy have been influential in keeping the focus on the initially proposed GHG accounting and biodiversity protection. The different stakeholders within the EU have therefore a diverging degree of power to shape the sustainability criteria.

### **5.4.3 Definition of Sustainability Criteria**

The discussion on the different sustainability aspects that needed to be considered, were interpreted by one of the interviewees from the EC in the following way:

“Many people said that we had to consider all the various aspects to ensure full sustainability. We countered that GHG are in fact the only thing that you can actually measure, in the sense that they can be calculated (Personal Communication, EC representative, 26.03.2014).”

....which is continued by....

“So we determined that the focus would be on GHG emission. However, after we did decide on the focus we were criticized, even within our own DG, for leaving out other details. But you know it’s not of importance. The good thing is that GHG emissions can be measured and that all the other important aspects would follow from that (Personal Communication, EC representative, 26.03.2014).”

These two quotes reveal a multitude of important point of departures for my analysis. First of all the quotes suggest that GHG emissions were indeed the main focus. The quotes showcase the position that has shaped the final formulation of the sustainability criteria. In order to avert the criticism on biofuels prior to the RED formulation, EC representatives decided to put a greater emphasis on ensuring GHG emission<sup>76</sup> savings. Thus, the inclusion of GHG accounting in the sustainability criteria is perceived as a step into the right direction. The decision to prioritize GHG accounting in the environmental and social safeguard debate is perceived as a positive measure for the increased sustainability of biofuels. The fact that criticism was voiced towards the GHG prioritization highlights the influence of certain stakeholders in pushing this through.

Applying Hajer to the policy-making process of the RED highlights a discourse structuration phase, which occurred prior to the final drafting of the RED<sup>77</sup>. In that sense, GHG accounting has evolved into a dominant rhetorical focus, mainly shaped by powerful stakeholders in the EC,

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76 The major focus within GHG accounting lies on CO<sub>2</sub> emissions, while methane capture and nitrogen emissions are also being addressed in the sustainability criteria ( Envi Committee, April 2014).

77 It implies that important stakeholders in the decision-making process take up a certain rhetorical argument, defining a dominant discourse (Hajer, 1995).

particularly the DG Energy. The discourse structuration of focusing mainly on GHG accounting within the sustainability criteria can be seen as the basis for the institutionalization of the discourse in the article 17 of the RED.

Thus one of my interim conclusions for this analysis is that the dominant focus of the RED sustainability criteria has been on GHG emission saving. The above findings of the revision of the article 17, as well as interviews led with EC and EP representatives and different discursive practices such as the Cramer Commission, support my claim. This has been characterized by different discursive standpoints “struggling” to influence the discourse structuration and institutionalization phase. Therefore, I delineate that these discursive struggles have excluded other sustainability standards, such as water management. In order to grasp how the sustainability understanding of the EU on biofuels has developed after the RED, the analysis of the ILUC debate is crucial.

#### ***5.4.4 ILUC the Window of Opportunity or a Proxy War?***

The concept of ILUC was introduced to the scientific community shortly before the RED was introduced in 2009 (DiLucia, Ahlgren, Ericsson, 2012). At that time ILUC was in its early phase, with little scientific research to base its claim on. Nevertheless, the EU did address the concept of ILUC in article 19 of the RED, suggesting to:

“submit a report..[...]...by December 2010..[...]....reviewing the impact of ILUC change on GHG emissions and addressing ways to minimize that impact. The report shall, if appropriate, be accompanied, by a proposal, based on the best available scientific evidence, containing a concrete methodology for emissions from carbon stock changes caused by indirect land-use changes, ensuring compliance with this Directive, in particular 17 (2)” (EU, 2009, p.40).

Thus, further research on the ILUC concept was authorized by the EU in order to investigate the possible impacts of ILUC on the sustainability criteria of the RED. The following table 4 taken from Palmer, visualizes the diversity of factors that can be included (2014).

**Table 4.** The Risks associated to LUC and ILUC (Palmer, 2014)

Risk	Classification	Examples of populations or groups at risk
Climate change exacerbation	environmental	• Entire global population
Biodiversity loss	environmental	• Vulnerable plant and animal species in locations where land-use change occurs • Human populations dependent upon ecosystem services previously emanating from landscapes converted to agriculture
Food insecurity	socioeconomic	• Populations living in locations where indigenous food production declines owing to land-use change
Land rights infringements	socioeconomic	• Populations whose land rights are not formally articulated or who lack the resources to defend those rights
Soil and water resource degradation and depletion	socioeconomic and environmental	• Ecosystems dependent upon clean and plentiful water supply (eg, rivers) • Human populations dependent upon local water resources that are scarce and/or vulnerable to contamination

Hence, table 4 shows, that water use is a considerable factor for LUC and ILUC (2014). A representative of the IEEP stated that in the beginning they were considering the fact of discussing the different environmental and social factors that might play into ILUC but realized that the debates were rather limited (Personal Communication, IEEP researcher, 10.04.2014). In the interview with the ENVI representative, he states:

“There were no in-depths discussions on the concept of ILUC. .... No, no, there were no specific discussions on water issues related to ILUC. I mean the discussion on the impact of ILUC were complicated enough (Personal Communication, ENVI representative, 09.04.2014).”

Thus, based on article 19, the table of Palmer's LUC and ILUC interpretation and the latter quote, I draw following conclusions on the ILUC definition phase. The consideration of ILUC by the EU opened up a new dimension on the sustainability criteria. Even though the GHG accounting focus had just transformed into an institutionalized discourse, stakeholders such as NGO understood the debate on ILUC as a new window of opportunity. In its broader understanding, the concept of ILUC can incorporate for a variety of different environmental and social safeguards, such as water management.

However, as the quote of the ENVI representative highlights, the definition of ILUC was not further discussed. ILUC could have been a window of opportunity for further discussions on environmental and social safeguards. Yet including factors, such as water use in the debate was not considered possible, as the interviewee indicates that the debates were “complicated” enough. This is especially interesting; if one considers that the statement comes from a representative of the ENVI committee. As outlined earlier, the ENVI committee was prior to the introduction of the RED arguing for wider sustainability criteria. However, after the RED was implemented and the ILUC debate gained importance, the ENVI committee did not see the possibility of being able to include a greater variety of criteria in the debate (EP, ENVI representative, April 2014). Since the ENVI committee can be seen as representing the more “progressive” position in environmental policy-making in the EU, it is also a good indicator for what debates are possible. If one reconsiders the formulation of the article 19 (6) of the RED, one can further understand why the debate on the ILUC definition has been neglected. It explicitly states that a “concrete methodology for emissions of carbon stock changes” is needed which ensures “compliance particularly with Article 17(2)”.

From the beginning of the ILUC debate, the EU has interpreted the issue of ILUC being routed in the related GHG emissions. The EU relates the issue of ILUC to the article of 17(2) on GHG emissions savings. This is why the ILUC debate within the EU has been limited from the start. In fact, even the debate on ILUC in terms of GHG emissions has been heated. Levidow argues that the NGOs and stakeholders defending a greater sustainability understanding, realized that ILUC was the “only game in town”(2013, p. 9). A representative of a Brussel-based NGO argued that after the introduction of the RED sustainability criteria, an improvement of GHG accounting was perceived as the only realistic objective (Personal communication, IEEP researcher). Hence, rather than seeing ILUC as a new window of opportunity for widening the sustainability understanding, the debate on ILUC was seen as a form of “proxy war”<sup>78</sup> (Levidow, 2013).

The IEEP, for instance, focused its criticism on the actual GHG emissions of ILUC, stating that the emissions would be much higher than previously calculated (IEEP, 2010). The report produced by IEEP build the basis for a common campaign of 9 NGOs demanding the EU to reconsider its 10% goal for biofuel use, called “Driving to Destruction” (Birdlife et al., 2010). In the brochure the NGOs address the actual GHG emissions, the impacts on agricultural practices and the land right issues involved. However, the diverse issues related to ILUC were seen as too complex to be able to be incorporated by the EU, with important industry representatives spreading considerable doubts on the ILUC debate (Levidow, 2013).

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78 The term proxy war is taken from the war terminology, implying “wars” that are fought alongside full-scale conflicts. In relation to the heated biofuel debate, one can relate the discussion of ILUC as being a proxy war as the real divide on the overall sustainability of biofuels is not questioned, the discussions are diverted into the ILUC debate (Levidow, 2013).

#### **5.4.5 The power struggle in ILUC debates**

The expected response by the EC towards the issue of ILUC was delayed from the original date the 31<sup>st</sup> of December 2010, to the 17<sup>th</sup> of October 2012. On the latter date the EC issued its proposal for the ILUC amendments to the RED. The proposal of the EC for ILUC amendments was leaked to the public one month prior to its official communication in October 2012. The IEEP representative notes, that this led to an outcry by the industry, as the EC was planning on including “stricter” ILUC standards in the RED amendments (Personal Communication, IEEP representative). The complaints on the leaked document influenced a “watering down” of the final proposal by the EC (IEEP, 2013). Almost one year later the EP approved the proposal of the EC with certain changes. In an interview the IEEP representative notices:

“Even though we had already accepted so many compromises in the debate on ILUC, it was still seen as being too much to ask. The industry representatives and the lobbies have a lot of power and you know, we were actually excluded from a lot of meetings (Personal Communication, IEEP representative, 10.04.2014).”

While an ITRE representative argued:

“The thing is that ILUC is still a very complex concept, which is difficult to pin-point to any specific results or direct implications. I think that we therefore need to refrain from taking too quick steps and basing it on not well refined models. What we need to consider that there has been a lot of investment made in the promising sector of biofuels. We cannot simply say it’s bad and just stop it. I mean in the end it is still better than conventional fuel (Personal Communication, ITRE representative, 08.04.2014).”

The ENVI representative argues:

“The ITRE committee had a very tough position, representative such as Mr. Vidal-Quadras were basically denying the concept of ILUC. They were basically proposing to do nothing and ITRE did not want to sign any compromise. And its interesting because you have to know, that the biofuel lobby has a close contact to the ITRE committee. The farming cooperatives played a big role and were attacking the concept very strongly. One of the lobbies, the Malaysian palm oil industry, even invited Mr. Vidal-Quadras and 10 MPs to Malaysia, right before the plenary voting in September. “(ENVI representative, 09.04.2014).

In the end however, the ENVI committee was able to reach a compromise with a suggestion of a cap of 5,5% <sup>79</sup>. The ENVI representative stressed that they worked together with more “moderate” representatives of the ITRE committee, who were no affiliates of the more conservative party of Vidal-Quadras (ENVI representative, 09.04.2014).

The interviews showcase how the decision-making process leading up to the ILUC proposals of the EC and the EP led to heated debates between NGOs, environment, energy and industry representatives. It reveals how even the standpoint of including ILUC criteria based on GHG accounting tools was not as easy to achieve.

The fact that certain stakeholders of NGOs were excluded from meetings is one of the discursive practices implemented by the powerful stakeholders of the EC. The bureaucratic structures of institutions, such as the EU and the EC in particular, facilitated the dominant power influences of particular representatives of the EC. The consultation meetings that were held by the EC in 2010 and following years have been criticized for excluding NGO representatives, as well as scientists, while including biofuel representatives such as the European Biodiesel Board (EBB). This led to NGOs writing a letter to the DG Energy and Climate Action, complaining about the limited stakeholder involvement in the decision-making (Hontelez, 2010). Prior to the complaint, different environmental groups, such as the European Environmental Board, filed legal action against the EC over its refusal of sharing important documents on the ILUC findings (Munzi, 2011).

The latter two examples showcase, how participation in the policy discussion process on the ILUC amendments was limited. The role of the biofuel lobby has been crucial for shaping the discussions on the ILUC amendments, influencing policy-makers in the EC and the EP. The debate between the ENVI committee and the ITRE committee in the EP is exemplary of the two different standpoints. The ITRE committee, similar to DG Energy, has taken a firm standpoint in questioning the concept of ILUC. The quote<sup>80</sup> exemplifies the doubt spreading mechanism by certain representatives of the ITRE committee and the affiliated biofuel industry. The argumentation line of pointing to greater complexity has been the major focus of the biofuel industry. Introducing a stricter measure on ILUC accounting, even just in GHG terms, would imply that more GHG intense produced biofuels are considered as unsustainable. This would have an impact on the whole biofuel production of the specific biofuel crop.

The quote of the ENVI representative first of all highlights the opposing views that the ITRE and ENVI committees had on ILUC. It also depicts the difficulty of being able to reach a compromise

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79 The meeting of the ministers in European council failed to reach any agreements, which is why a second reading will be scheduled. This implies that the possible consensus on the ILUC amendments will probably be less strict.

80 by the ITRE representative

in this situation. The ITRE committee has been in close contact with the biofuel industry, even joining lobby business trips right before the vote in the EP (Personal Communication, ENVI, 09.04.2014).

#### **5.4.6 ILUC debate implications and link to water**

The highlighted examples of the ILUC policy-making debate helped me to showcase the ongoing discursive struggle on sustainability understanding of biofuels. The current debate on ILUC is important. It exemplifies how specific discursive structures have been reproduced, in order to maintain the dominant discourse on GHG accounting. Rather than using the ILUC debate as a starting point for greater discussions on its definition, the debate has been limited to discussions on different GHG emissions calculations. The ILUC debate has been established as the single current discussion on the RED sustainability criteria. Once again the possibility of debating on the environmental and social safeguards is neglected. The alternative discourse on further inclusion of the latter safeguards has successfully been kept from the policy-making stage in Brussels. It therefore explains why water management is continuously being disregarded in relation to sustainability criteria. Research conducted by the IEEP on the air, water and soil impact of biofuel cultivation, which has been issued by the EC, has not been considered (2012). The representative of the IEEP stated:

“Even though the study was issued by the EC, in order to assess the greater impacts of the biofuel cultivation on air, water and soil, the EC did not show any interest or appetite on considering the findings for the ILUC debate or sustainability criteria in general (Personal Communication, IEEP, 10.04.2014)<sup>81</sup>.”

Though, what needs to be noted is that the focus on ILUC was much more ambiguous than on the original sustainability criteria. Even accounting for ILUC in GHG emission was not directly accepted by the dominant discourse coalition of EC representatives and biofuel industry. The original agreement on focusing on GHG accounting in the RED sustainability criteria was the minimal consensus that could be found. With ILUC, finding a minimal consensus has become even more difficult. It is therefore also an indicator for the scope of possible improvement of the RED sustainability criteria. If the discussion on ILUC in terms of GHG accounting has already touched the limits of consensus, then further sustainability criteria in terms of binding social and environmental safeguards, such as water management, become even less possible.

The suggested cap to 5.5% of food-based biofuels by the EP (and EC with 5%) in order to

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81 Next to this the EC representative also notes “In fact the reports on additional environmental and social safeguards have been rather vague. Therefore no actions based on the reports have been considered” (Personal Communication, EC).

prevent greater impacts of ILUC on GHG and food prices is a disputed solution. One could argue that capping the production of food-crop based biofuels is not enough, as non-food crop based biofuels also cause ILUC. Thus, it does not address the greater questions and issues of biofuel production, such as soil, water and air impacts as well labor and land rights. At the same time, suggesting the cap could be a possible turning point in the GHG centered biofuel policy. By acknowledging the impact of food-crop based biofuels on food security, a greater connection to the agriculture scene is made. It could therefore also be a starting point for further discussions on the connected issues of agricultural biofuel production to water. Nevertheless, it might be questionable, whether the cap will in fact be introduced, as the council of the ministers did not come to any agreement<sup>82</sup>.

#### **5.4.7 The Battle Vocabulary**

Showcasing the discursive power struggle can also be underlined by looking at particular vocabulary that might be used. Within the interviews held with the representatives of the EU and the Brussel-based NGO a specific “battle” vocabulary can be depicted. In the interview led with the representatives of the ENVI committee it was stated that “the ITRE representative had a not very constructive position towards ILUC, so he wanted the full battle”, as well as stating “so it was a victory for Ms Lepage who managed to push through a more progressive objective on ILUC”. In the interview led with the ITRE representative he maintains that “they were pushing for objectives that would have been very damaging for the biofuel industry, so we fought back with the fact that ILUC models until now have not been predictable enough.” Further words that support the battle vocabulary in the interviews include concepts such as “defeat”, “great loss”, “forced to agree on compromises” (taken from personal communications). Linking this vocabulary back to Hajer and the discursive strategies one can understand how the power struggle is fact visualized in linguistic terms. By using words such as battle, victory and defeat, the stakeholders involved in the policy-making process, highlight how inherently opposing the different standpoints are.

## **6 Discussion**

### **6.1 Summary of the Findings**

Summarizing the findings and analysis, two main conclusions can be drawn. First of all, the analysis of the policy documents, interviews and other political events allow me to assume that a dominant narrative of GHG accounting has been underlying the RED and ILUC debate. Even though biodiversity protection is a binding criterion, it is an additional criterion. The dominant GHG accounting discourse

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<sup>82</sup> Countries such as Germany, France, Spain and Sweden have already passed the 5,5% margin, suggesting that these countries will not be interested in agreeing on the latter cap (EurObserver, 2011).



implies that other sustainability considerations, such as water, are not included and therefore neglected. This reveals a limited understanding of sustainability, centering mainly on solutions to mitigate climate change. In my eyes, one reason for this is that one of the main emphases for the RED introduction, is the reduction of GHG emissions. Therefore, the solution to making biofuels more sustainable and avert negative impacts, is also found in GHG reduction<sup>83</sup>. A second explanation for the dominant discourse is that GHG emission reduction is a dominant issue within international environmental policy-making (Moolna, 2012). This point will be explained more in-depth later in the discussion.

The narrow understanding of the sustainability criteria is, however, not based on a unitary standpoint of the EU towards biofuels. Contrary to this, there is an underlying struggle within the decision-making process of the EU. Assessing the different standpoints between the DG Energy, Environment and the EP committees on Environment and Industry, helps to delineate different understandings of sustainability. The discursive struggles that take place during policy-making depict the power influences that the different EU representatives and other stakeholders such as the industry and NGOs have. The dominant GHG focus is an outcome of specific interests trying to limit the definition of sustainability standards. It further can be seen as a minimal consensus between the more progressive environmental representatives and the industry interests.

The ILUC debate assists this discussion, by highlighting how particular discursive standpoints have been reproduced. Rather than discussing the definition of ILUC and its linkages to soil, water and land rights, it has been positioned within the GHG accounting focus. Even the focus on ILUC only in GHG emission impact has led to disputes. Thus, focusing on GHG emission accounting became the only possible compromise for the parties involved. This leads me to my second conclusion, namely that the complex interplay of the policy-making process, its procedures and stakeholder involvement, implies that the resulting sustainability criteria have to be understood as a minimal consensus. It might at first glance not be a surprising outcome. However, linking it back to the dominant GHG emission discourse, I find that it differentiates the first conclusion. It implies that the limited sustainability criteria definition is the outcome of complex discursive struggles. Nevertheless the limited sustainability criteria do have detrimental effects on biofuel production sites, as shown with the example of Central Kalimantan.

## **6.2 Hajer & the RED**

Within the EU institutions, two crucial discourse coalitions have struggled to influence the RED sustainability criteria formulation. The dominant coalition includes certain representatives of the EC

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<sup>83</sup> Since biofuels are understood as a solution to mitigating GHG emissions in the transport sector, their sustainability is reduced to them trying to come closer to carbon neutrality.

within the DG Energy, in the EP the ITRE committee and affiliated biofuel lobbyists. The second discourse coalition is formed by a variety of non-EU representatives such as NGOs and research institutes like the IEEP, the DG Environment and the ENVI committee<sup>84</sup>. Representatives of the first discourse coalition have shaped the prior discourse structuration of a GHG emission focus in the sustainability criteria. They have successfully suppressed the attempt of the second discourse coalition to widen the sustainability criteria. This has led to the translation of the structured discourse of GHG accounting into institutionalizing the discourse into article 17 (2). Following the introduction of the RED, the ILUC debates have contributed to reinforcing the dominant discursive focus on GHG accounting. Discursive practices by the IEEP and NGOs to widen the debate on ILUC in terms of environmental and social safeguards have been rejected by the discourse coalition in power. This has in fact contributed to minimizing the debate on ILUC further, as the focus only in GHG emission terms has even been questioned by industry and energy representatives.

### **6.3 Carbon Dominant Discourse**

The EU's commitment to climate change combating has led to universal appraisal for its determined GHG emissions reduction policies (Baker, 2006). The argument of the RED and ILUC debates centered on GHG emission accounting can be linked to Hoyer's dominant carbon discourse analysis (2010). He maintains that the current discourses in environmental policy are dominated by the carbon discourse<sup>85</sup>. Hoyer states that the debate on GHG emissions has faced a certain reductionism in relation to energy and environmental issues (Hoyer, 2010). Thus, he argues that energy related issues are reduced to GHG emission, with the need to focus on energy being carbon neutral. In relation to the RED this entails that even if biofuels were carbon neutral, it would not necessarily imply that they are more environmentally friendly. Moolna claims that politicians have favored the carbon-centric approach, as it reduces the complexity of sustainability challenges into "digestible" solutions (2012). He maintains that actions taken to mitigate climate change can threaten other important environmental and social dimensions, since they are being neglected by a carbon dominant policy discourse. Even though the impacts of global climate change will be severe and I do not want to contest this, it needs to be outlined how the link to other environmental and social sustainability aspects have been neglected within the biofuel policy debate.

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84 Different discursive practices such as the Cramer Commission supported by the ENVI committee and meetings between EC representatives with the industry have supported the discourse coalition.

85 Carbon has in fact even been disconnected from the greater GHG emission approach. This can be understood in the sense, that simplified models of GHG emissions often only account for carbon emissions. The GHG cycle however is more complex and other gases such as methane are also highly damaging to the atmosphere but is often neglected through the dominant focus on carbon emissions (Hoyer, 2010).

### **6.3.1 Measuring GHG Emissions**

In the interviews on the definition of the sustainability criteria, the measurability of GHG emissions is used as a justification for GHG-emission-centered policies. This is based on a technocratic rationale, which makes use of simplified natural science measures to account for sustainability issues (Scrase & Smith, 2009). Applying specific methods towards GHG emission accounting, simplifies the complex processes occurring in the GHG cycle and enables scientists to create models (Moolna, 2012). The development of the carbon debt concept within the scientific community has gained greater attention, incorporating direct and indirect impacts of GHG emissions for biofuel cultivation (Fargione et al. 2008). Moolna argues the GHG modeling in abstract terms, based on simplified quantification methods, has been an endeavor driven by politicians in order to make environment challenges more governable (2012). This however, has made GHG emissions more abstract and has disconnected it from the ground, which has allowed the commodification of GHG emissions (Moolna, 2012). In terms of the RED sustainability criteria commodification has not translated GHG emissions into monetary value, although trying to account for biofuels only in GHG emissions independent from its location has turned GHG emission into a denaturalized commodity.

Applying a critical realist perspective one can also question in how far the simplified quantification methods used by the EU are able to mirror the actual GHG emissions. For instance, in a recent joint technical research published by the EC, serious criticism addressed the calculation method currently used for the carbon debt accounting (Marelli, 2013).

### **6.4 Placelessness**

The decontextualization of GHG-centric discourse is an interesting argumentation line, when linking it back to the RED sustainability criteria. As the focus on water grievances from biofuel production in Central Kalimantan has shown, local people's realities are neglected by the existing sustainability criteria. In that sense, one can say that neglecting more encompassing safeguards, has disconnected the biofuel production from its ecological, geo-political and social realities. From a human geography perspective I apply the concept of placelessness (Hubbard, Kitchen & Valentine, 2008). The dominant focus on article 17 (2) implies an abstract accounting of GHG emissions saving, bearing no reference to local realities. With the inclusion of protection of land that is biodiversity rich or carbon rich, the article 17 (3), (4) & (5) do in theory account for the different characteristics of places. However, the vague definition of the different land classifications implies that the actual translation in particular land protection is much more complex. Further the criteria do not address the actual places that are being used for biofuel production<sup>86</sup>.

The concept of placelessness has particular implications for biofuel production landscapes

86 That have already been converted and are now being used for biofuel cultivation.

that are situated outside of the EU borders. This is so because additional environmental and social regulations of the EU, such as the European Water Framework Directive, cannot be applied to biofuel production outside of the EU. It is a reason why the lack of more encompassing sustainability criteria can have detrimental effects on biofuel production in extra-territorial countries, as the example of Central Kalimantan showcases. An increase of biofuel consumption, stimulated by the EU RED, has already indirect effects on countries such as Indonesia, putting a greater stress on biofuel production (BWI, 2011) .

A study by Lenzen found that increased globalized trade has an impact on biodiversity loss (2012). Analyzing consumption patterns can help to delineate how biodiversity loss of another country is being indirectly imported through consumption. These results can be closely linked to the theory of unequal ecological exchange. The theory entails that positive environmental development within one country or region, might imply an upstream of environmental damage in another country (Hornborg, 1998). Thus, economic production might be outsourced in order to reduce domestic negative environmental processes, while it increases them abroad. In terms of the biofuel policy and Central Kalimantan one could argue that the attempt to reduce GHG emissions in the EU, has the effect of decreasing and polluting the river basins in Indonesia. Since the theory of unequal ecological exchange makes use of the direction of net-flows and materials, it would be an interesting step to try and initiate research<sup>87</sup> on this<sup>88</sup>.

Lastly, the limited understanding of the sustainability criteria and its relation to placelessness can also be linked to international justice debate. Jerneck, Olsson, Ness et al. emphasized the importance of deconstructing sustainability discourses in order to uncover biases and limitations (2010). It is crucial to highlight the impact of dominant discourses in environmental policy-making on the definition of sustainability, to consequently delineate what has been neglected in the definition. This is a start for opening up the discussion on marginalized environmental and social safeguards and lending a voice to affected communities. In case of further research on unequal ecological exchange and water grievances in Kalimantan it would therefore be interesting to consider the debate on justice.

## **6.5 Sustainability Science**

Since the last point connects back to the endeavors of sustainability science, I therefore would like to embed my research now within the realms of sustainability science. The RED's main justification points have been linked to the paradigm of ecological modernization theory, helping to first of all

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87 It could be based on the methods used in Lenzen et al. study (2012)

88 However, given the fact that palm oil is a multi-crop with many different kind of usages and different exporting countries, will aggravate the research.

place the RED within a spectrum of sustainability science. However, most of the current environmental policies of the EU are situated within ecological modernization theory (Baker, 2007). In order to analyze the sustainability criteria more in detail, weak, strong and critical sustainability were applied. At first glance the criteria seemed to incorporate features of weak and strong sustainability, as well as critical sustainability. Although, the fact that the policy is embedded within EMT also explains why a stronger commitment to sustainability, which trespasses the boundaries of socio-technological fixes and ensures greater environmental protection, might be difficult to be incorporated within the RED.

However, with the GHG-emission-centered discourse, sustainability criteria demonstrate a their limited definition. Linking it back to Rockström et al.'s 8 planetary boundaries, the interconnectedness of the boundaries needs to be highlighted (2010). A policy that is trying to mitigate the risks of one of the planetary boundaries might disregard the negative implications this might have on mitigating the risk of other planetary boundaries. Thus, solutions to combat climate change, such as the use of biofuels, can have negative impacts on the water use, on nutrient leaching through excessive agriculture, on land use change and competition for land.

Sustainability science stands for being interdisciplinary, holistic and a mediator between science and policy (Kates et al., 2001). Kates and Parris emphasizes the importance of considering the long-term trends of society in order to be able to understand what underlying frameworks<sup>89</sup> might be there that block the transition to a more sustainable future (2003). Related to the interconnectedness approach is the risk-nexus approach, which has especially been framed in terms of the water-energy-food nexus (McCornick, 2008). The approach implies that any environmental solution taken in order to minimize deterioration of one of the aspects, also needs to incorporate what impact this has on the other environmental aspects. For biofuel policies it is of importance to consider the nexus approach (AETS Consortium, 2013).

The fact that the EU termed article 17 as sustainability criteria, while only developing binding criteria for GHG emission saving and biodiversity protection, can be considered as a dangerous strategy from a sustainability science perspective. Given the fact that the EU has a normative power in environmental policy formulation, the limited definition of the criteria have defined the overall conceptualization of sustainable biofuels. The limitation of the ILUC debate has further minimized the possibility of redefining the sustainability criteria in a more encompassing way.

I do acknowledge the fact that not every environmental policy can include each and every planetary boundary to the same degree. However, given the fact that currently used biofuels are mainly crop-based and therefore require cultivation on additional land, criteria related to the cultivation need to be included. As a researcher from the SEI has pointed out, the issue with more

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89 Norms and values

encompassing sustainability criteria is also linked to the fact that the agricultural sector as such, does not have any international regulations on sustainability (SEI researcher, March 2014). Therefore, including sustainability criteria, which address agricultural practices for sustainable biofuel production is much more difficult to push through. Nevertheless, the inclusion of such criteria could thereupon have positive impacts on the entire agricultural sector and sustainability standards (SEI researcher, March 2014).

Even though I have analyzed the RED sustainability criteria from a very critical standpoint, I would like to highlight the positive contributions as well. The article 17 is in fact, the first binding sustainability criteria of its kind for sustainable biofuels. Making the GHG emission saving and the biodiversity protection mandatory for domestic and extra-territorial produced biofuels<sup>90</sup>, has been an achievement in itself. In reality it is much more difficult to push through a normative and more encompassing understanding of biofuels. It could be a legitimate criticism to argue that, if GHG emissions are not reduced then water scarcity, soil erosion and social grievances might in fact rise much more than if biofuels are introduced.

Nevertheless, one should question the infrastructure and application of the transport sector rather than just searching for easy technical fixes that replace conventional biofuel use. The second generation biofuels look more promising, however there are problems whether it will be enough to mitigate GHG emissions in the transport sector. With them as well sustainability criteria need to be understood more holistically and interconnected.

## 7 Conclusion

To conclude, in my thesis I have first of all outlined how the Renewable Energy Directive is placed within the ecological modernization theory framework, defining and limiting the understanding of sustainability. This has been followed by an analysis of the underlying sustainability understanding of the sustainability criteria. Even though traits of weak, critical and strong sustainability are woven into the criteria, the water grievances example from Central Kalimantan in Indonesia has shown otherwise. I used the example in order to showcase what has been neglected from the sustainability criteria of the RED. This example helps to reconsider the criteria and by emphasizing what has been neglected, I was able to delineate a dominant discursive strategy within the policy-making process of the the European Union. A dominant GHG-accounting discourse has been underlying the policy formulation within the EU, limiting the scope of the sustainability criteria. The Indirect Land-Use

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<sup>90</sup> counting into the 10% goal

Change debate is an important connecting factor for grasping the reproduction of the dominant GHG-accounting discourse. Rather than using it as a new window of opportunity, the ILUC definition of the EU has been limited to a GHG accounting understanding from the start. However, what is crucial to point out is that the debate on the definition of sustainability criteria has been characterized by extensive discursive struggles between stakeholders. Thus, rather than understanding the GHG accounting discourse as a linear, unison development, it has to be understood as the outcome of a minimal consensus between the discourse coalitions. The complex institutional and decision-making processes of the EU have contributed to the limited scope.

The restricted definition of the sustainability criteria does have negative consequences for the production site of biofuels. This is particularly so for extra-territorial biofuel productions, as additional social and environmental directives of the EU are only applicable within its own borders. By focusing on abstract GHG accounting methods, the EU has encouraged a placelessness of biofuels, stripping them from their social, geo-political and ecological context. It exemplifies the dangers that come with a limited definition of sustainability. In terms of sustainability science this is even more so, as defining criteria as sustainable while excluding a more interconnected, holistic perspective of sustainability, can limit the commitment to the latter. This is an important point for the EU to consider, as its leading role in environmental policies has granted the EU a normative power in defining sustainable issues and solutions. If the EU defines sustainable biofuels in this limited scope, it does have a greater influence on the international understanding of sustainable biofuels. Thus, if the EU wants to uphold its progressive role in environmental policy formulation, it has to reconsider its sustainability understanding, and in this case the sustainability criteria and the ILUC amendments suggestions. Questioning the underlying sustainability definition and paradigms of environmental policy is crucial in order to understand in what framework they are placed and what solutions they consider as desirable.

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## 9 Appendix

Original Interview Guide (although questions changed throughout the research and with the different experts).

### EU and Biofuel Policy

1. What do you think is the major function of biofuels in the European Union?(short statement; maybe ask for the three main reasons)
2. How do you understand sustainability in relation to biofuels? What is the most important aspect to sustainable biofuels? (e.g. CO2 emissions, energy security, rural development...etc.)
3. How has the European Commission conceptualized sustainability of biofuels? Is there a difference to your understanding (in case they are not EU representatives or their opinion differs from the official standpoint)?
4. How was your committee conceptualized sustainability of biofuels in the parliamentary debate?
5. How was your institute conceptualized sustainability of biofuels?
6. Outline their understanding of how the sustainability criteria have come about, by whom they were introduced? What interests were behind the EU policy?
7. What were according you important events or occurrences during the policy process of the RED and the ILUC debate?
8. Do you see any limitations to the biofuel RED policy, aka sustainability criteria? Which one in particular? Explanation why these facts might be neglected?
9. What were the main focal points within the amendments discussions on ILUC?
10. How has the definition on ILUC been agreed on?
11. Concerning water governance for instance, what role do you think that water management plays in relation to the sustainability criteria and biofuels?
12. What do you think are the main reasons why it has not been included as a binding criteria?