

# The challenge of finding correct measurements for mitigation of greenhouse gas emissions

A frame-critical analysis of the Kyoto protocol

Tobias Persson  
900512-1331

# Abstract

The Kyoto protocol was the first tangible approach to prevent increasing amounts of greenhouse gases in the atmosphere. In order to attain this objective, the parties of the protocol decided to put restrictions on anthropogenic emissions caused by production in developed countries. This territorially defined production-based method of measuring might have been a misguided path though. Researchers studying the negative effects of the production-based measuring model have proposed a consumption-based approach instead.

The purpose of this study is to investigate why politicians have decided to measure emissions from production instead of consumption. I have used framing theory to analyze the problem-formulation of the protocol and how this constitutes the policy solutions. I have applied the theory from a frame-critical perspective and interpreted the taken-for-granted assumptions of the established policy. By analyzing the protocol from this perspective I have interpreted three assumptions that might lead the policy into this course: the neoliberal belief in the market, the consumer sovereignty and the state-centered norms. My interpretation is that these aspects are leading the conceptualization of climate change into a problem of unsustainable management of common resources, and thus the solutions are aimed for the production instead of the consumption.

*Key words:* Kyoto protocol, framing, frame-criticism, consumption-based, production-based

Words: 9885

# Table of contents

<b>1</b>	<b>Introduction.....</b>	<b>1</b>
1.1	The puzzle and its question.....	2
1.2	Disposition .....	3
<b>2</b>	<b>Framing theory .....</b>	<b>4</b>
2.1	Application of framing theory .....	6
2.2	Frame-criticism .....	7
2.3	Limitations .....	8
<b>3</b>	<b>Analysis .....</b>	<b>9</b>
3.1	The road to the Kyoto protocol.....	9
3.2	The Kyoto protocol.....	10
3.3	Framing the problem of greenhouse gases .....	13
3.3.1	The marketization and pluralism of environmental politics .....	13
3.3.2	The predicament in defining the need of consumers .....	15
3.3.3	The state-centered perspective of international politics .....	16
3.4	Conflicting frames in the post-Kyoto negotiations.....	18
<b>4</b>	<b>Conclusion .....</b>	<b>21</b>
<b>5</b>	<b>References.....</b>	<b>23</b>

# 1 Introduction

Climate change has become an issue that is at the top of the international political agenda (Bulkeley & Newell, 2010:1). The conceptualization of climate change has developed from a problem that concerned environmentalists and scientists in the 1980s, to a problem that is repeatedly ranked among “the most pressing issues of our times in the eyes of the public” (Methmann et al, 2013:1). The ratification of the Kyoto protocol was the first step towards tangible actions to mitigate the effects of climate change. The protocol was formulated in 1997 and came into force in 2005. Throughout the construction, ratification, and implementation phases, the protocol has faced an abundance of criticism, since the potential impacts of climate change and the efficacy of current measures remain in contention. (Pettenger, 2007:1)

The focus of this study lies within the framing of the problem with anthropogenic greenhouse gas emissions and the way that pollution is supposed to be mitigated according to the Kyoto protocol. I will also briefly search for the conflicting frames in the post-Kyoto negotiations. By applying a framing analysis, I will investigate the current conceptualization of the problem with anthropogenic greenhouse gas emissions and how these are supposed to be mitigated. This is a question of whose responsibility it is to act and how it should be done. My aim is to develop an understanding of the problem with the current framing regarding greenhouse gas emissions, more specifically whether production or consumption is interpreted as the problem. Furthermore, this raises questions about whether the current measures for mitigation of greenhouse gases are efficient and equitable.

First of all, I will give a brief introduction to the current territorially defined production-based way of measuring emissions and the conflicting consumption-based approach. The Kyoto protocol set binding commitments for developed countries (Annex 1) to mitigate emissions of six different greenhouse gases (carbon dioxide, CO<sub>2</sub>, is the most important) by at least five percent below the 1990 levels throughout the 2008-2012 period. The mitigation commitments were distributed between the developed countries, in the Annex 1 group, that was given different targets for mitigation of emissions. (Carter, 2007:253) This implies that the commitments in the Kyoto protocol was set by territorially bound targets with differences in responsibilities between states (Peters, 2008:13). Another implication of the Kyoto protocol is that it focuses on each country’s emissions from production of goods, based on recent emissions (Cooper, 1998:70). This method of measuring disregards some concerns for each state’s environmental impact. One problem is that the responsibility for emissions from international transportation is not allocated. Another concern is that it introduces a potential for carbon leakage, which means that countries reduce their emissions on behalf of rising emissions in other countries. This is because the current production-based

measuring does not include emissions from imported goods. (Peters, 2008:13-14) The effect of this is that many developed countries have reported stabilized emissions with the current accounting of greenhouse gas emissions. But once the emissions from consumption are included in the calculations the result shows an increase in the share of emissions for most of the developed countries. This increase has its origination from the production in developing countries. (Peters et al, 2011:8907) When The Guardian interviewed Glen Peters, one of the most cited researchers of consumption-based calculations of greenhouse gases, he stated:

*"Our study shows for the first time that emissions from increased production of internationally traded products have more than offset the emissions reductions achieved under the Kyoto Protocol."* (The Guardian, 2011)

The current way of measuring the emissions of greenhouse gases could thus be seen as inadequate, since the worldwide emissions of greenhouse gases have not declined (The Guardian 2, 2011). The current way of measuring the effort for acting against climate change might thus be a misguided path. This raises questions about why politicians decided to take this direction and how the framing of the problem leads the policy towards this specific direction.

## 1.1 The puzzle and its question

Most of the developed countries have increased their consumption-based emissions faster than their territorial emissions. According to Peters et al (2011:8903) international trade is a significant explaining factor for the changes in levels of emissions of CO<sub>2</sub>. Since the changing amount of greenhouse gases in the atmosphere does not consider where in the world the emissions are released, this means that the current way of measuring the actions for climate change might be insufficient in a globalized world of interconnected markets. The question is whether this is a conscious path, in order to support certain interests, or maybe it is just a more manageable way of measuring. Another aspect that might be leading policy in this direction could be that the understanding of the problem is insufficient. Is the focus of restricting production a misguided path, which leaves the concern about consumption out of discussion? In terms of Martin Rein's theory of framing, the problem of climate change might be framed in a misleading way. Framing theory is focusing on the way politicians are constructing the problems in order to find achievable solutions. The problem-formulation, or framing, of climate change might be leading policy in this certain path. I will perform a framing-analysis of the Kyoto protocol in order to understand this problem. My intension is to apply one of Rein's suggested applications of the theory, called frame-criticism, which has the purpose of analyzing the taken-for-granted assumption of established policies (Rein, 1983:103). I will use this theory in order to find an understanding of the current framing of climate change policy

and the concern over anthropogenic greenhouse gas emissions. The question I intend to answer is:

*How can the production-based measuring of greenhouse gas mitigation in the Kyoto protocol be understood from a frame-critical perspective?*

By analyzing the Kyoto protocol and the policy instruments that were established as a consequence of the protocol I will try to answer this question. In the later section of the thesis I am going to review conflicting frames in the post-Kyoto negotiations, in terms of their dichotomy in production and consumption. This will be a minor part of the study, where I will try to find out if the current framing has been contested. The purpose of looking for conflicting problem-formulations is to reveal how reluctant the current framing is to opposing views.

## 1.2 Disposition

The disposition of this thesis will be as follows. To start with I am going to explain the framing theory and then give a further elaboration of the frame-criticism, which is the perspective I intend to use for my hermeneutic analysis. In the empirical analysis I will briefly explain the context of the climate change regime, followed by an interpretation of the Kyoto protocol and the convention that it is recalling. In the following section I intend to explicate the three core indicators in the protocol that I have identified, which might be leading to the current framing of emission. In the last section of the analysis I will search for conflicting frames in the post-Kyoto negotiations. Lastly, I will summarize my findings in the conclusion.

## 2 Framing theory

The international community has been accused of slow decision-making about how to solve the problem of climate change, even though the scientific reports from the Intergovernmental Panel on Climate Change, IPCC, have built an alarming picture of the human impact on the climate (Bulkeley & Newell, 2010:1). During the last couple of decades, the environmental politics has emerged from a question of whether or not to act, into an increasing struggle of interpretations of the problem. Many actors have participated in a complex debate of the conceptualization of the problem. In Hajer's words this is a struggle of setting the environmental discourse (Hajer, 1995:15). Policy-making could be analyzed as a process of creating problems by processing fragmented and contradictory statements, in order to "create the sort of problems that institutions can handle and for which solutions can be found" (ibid). This implies that the political world is subject to a social construction since a complex reality can be understood from different perspectives, or frames. Rein and Schön explain it as: "[T]he participants construct the problems of their problematic policy situations through frames in which facts, values, theories and interests are integrated" (Rein & Schön, 1993:145). The framing theory supposes that the world is pluralistic, which implies that the political world is contested and indeterminate (Wagenaar, 2011:85). Framing is thus a selection and interpretation of a complex reality in order to provide guidance for knowledge, analyzing and acting. Framing is therefore a way of making sense of a problematic situation in order to decide how to act. (Rein & Schön, 1993:146)

Hajer (1995:21) says that the emblematic role of the environmental discourse "indicates that single issues determine the public perception of a much more complex reality." This implies that the construction of a discourse is an important struggle for power, since the discourse can be defined without regarding certain aspects of reality (ibid). This brings forth a question about the procedural justice in the international community. It is important to clarify the processes for the constitution of treaties and regimes where agreements for greenhouse gas mitigation are decided. One of the most important aspect is whether all parties are equally respected and included in the decision-making process, and "the answer clearly is no" (Parks & Roberts, 2006:345). According to Hajer (1995:22) the regulation of a problem needs a discursive closure where "the problem needs a definition that gives policy-making a proper target". The question is whose interests are defining the framework for the discursive closure. The struggle of several different actors to define the problems and thereby solutions is characteristically important in international environmental politics. Several different studies have shown how actors exercise power by importing a certain frame or discourse into the discussion. (Hajer & Versteeg, 2005:177) It is

important to notice that there is a difference between discourse and framing. Hajer uses the language of discourse coalitions, but according to Wagenaar (2011:85) “his concept of discourse coalition is more akin to a frame”. This is the reason why Hajer has influenced me in my interpretation of the theoretical perspective.

The concept of framing could therefore be understood as a struggle between actors to be in control of the agenda of a discussion. This implies that “policy controversies are inherently subject to multiperspectival [sic] accounts” (Rein & Schön, 1993:148). This suggests that complex issues have a potential to be interpreted in different terms, through conflicting frames (ibid). An implication of this is that some aspects of reality might be neglected when framed in a certain manner. As Rein explains:

*“Thus problem setting becomes a critical element of the frame because it calls attention to some things and neglects the importance of others, because it names certain events, and because of the normative implications of viewing the world in this particular way.”*  
(Rein, 1983:98)

In Hajer’s terms of discursive closure a problem needs to be defined in order to find a solution, which implies that a certain framing is needed in order to be able to act. The use of frames in policy-making creates a certain type of story to understand reality. Actors express their normative beliefs by interpreting an uncertain problem in order to name the phenomenon and create guidelines for action. These guidelines create a framework for interaction between actors and the interplay between thought and action: “They define the boundary between evidence and noise, and shape views about what counts as progress. The stories wed fact and value into belief about how to act.” (Laws & Rein, 2003:174) These framing issues can be seen in the governance of climate change, where actors seek to define the nature of the problem in a way that promote their interests, as well as the competition of preferred solutions. This is particularly seen in the accenting of market-based solutions that reflects the interests of certain organizations and nation-states, since it enable them to reduce emissions wherever it is cheapest to do so (Bulkeley & Newell, 2010:51).

The question is why the climate change negotiations took this direction and how the problem can be reframed. The reason why politicians frame a situation is because they need to organize the multitude of details in a real-world problem, in order to know how to act in the particular situation (Wagenaar, 2011:224). Once a frame has been set into practice it can settle a resistance to frame reflection (Laws & Rein, 2003:176). In order to reframe policy “there is a need to ‘fix belief’, which over time gives rise to opposition and then to formal challenges of the dominant frame” (ibid:175). This implies that the actors need to question their action routines, by a reflexive distancing, in order to loosen the hold that practice has on the actors. This reflection-in-action creates a possibility to find new paths for action. (Wagenaar, 2011:225) The reframing of policy is thus a reflective part of the policy where the actors contest the current taken-for-granted assumptions resulting in new problem formulations and other approaches for solutions.



## 2.1 Application of framing theory

Studying frame discourses in policy make it possible to understand how politicians deal with the epistemological dilemmas caused by conflicting frames. This can be a fruitful method to clarify how people approach frame conflicts in the absence of an agreed-upon framework. (Rein & Schön, 1993:150) The studying of frames can be problematic though, since it is hard to distinguish between disagreements within a frame and conflicts across frames. This is because actors are probably seeking realizable actions and therefore adapt the dominant frame and its narratives in order to reach legitimacy for another course of action. (ibid:152) In the case of international negotiations on climate change, contrasting frames are most likely under-represented in official documents since they might be categorized as noise. My intention is to discover which frame dominates the climate change policy in the Kyoto protocol and beyond. Since frames do not exist in reality they need to be interpreted in order to study them, as Rein and Schön declares:

*“If we wish to study them, we must construct them, which is to say that from some evidence we must infer interpretations about belief and meaning and implications for action to deal with coping and facing.”* (Rein & Schön, 1996:91)

I intend to use the concept of framing in a value-critical policy analysis, where frames are taken as objects of their analysis. This analysis is meant to investigate “the categories of people’s thoughts, examining where these thoughts come from, where they lead, and what ambiguities and inconsistencies they contain” (Rein, 1983:101). The frames are thus supposed to be analyzed through the implications of actions, which identifies what beliefs, information, values and aims that lead to the particular action preference (Wagenaar, 2011:85). This kind of analysis includes an empirical search and interpretation of regularities, and a critique of that reality (Rein, 1983:101-102). Rein’s later formulations of frame analysis have a more dialogical meaning, since they focus on the practice and development of frames through conflicting policy actors. The earlier versions, which I have decided to emphasize in this thesis, are hermeneutic and attempt to sort out competing meaning perspectives underlying a political controversy. (Wagenaar, 2011:82)

There are some limitations of the framing theory, which are important to keep in mind. The “concept of frame is very ambiguous”, which implies that it is still unclear what a frame really is (Wagenaar, 2011:88). This implies that it is unclear what the analysts is identifying when she or he find a frame. The framing theory is based on a notion of a socially constructed world, which in its own analysis raises questions of the epistemic status of frames. Differently put: are frames a part of social reality that can be found by the analyst, or are they “conceptual shorthand” for interpretations of social reality? (ibid) In other words, it is necessary to be aware of the role of the interpreter when studying frames. According to Wagenaar the most common way of relating to this problem in framing analysis, is to adopt a

meaning realist position. The position of meaning realism is that “meanings are fixed entities that can be discovered and that exist independent of the interpreter” (Schwandt cited in Wagenaar, 2011:88). It is important to recognize that the way the meanings are interpreted can lead to different frames, which means that frames might be relative to the interpreter. This is very important to keep in mind while applying a frame analysis. (ibid:89)

Rein suggest three different ways of applying value-critical policy analysis: Frame-criticism, which I will elaborate in the following section; frame creation, which consist of a critique of a particular framework because it fails to deliver on its implicit moral promise, followed by the development of another framework; and the redefinition and integration of frames, in order to make different frames compatible. (Wagenaar, 2011:85)

## 2.2 Frame-criticism

I base my framing analysis on the application called frame-criticism, since I find it most suitable to answer the question of how the current framework of measuring greenhouse gas emissions emerged. The criticism of frames is an inquiry focusing on the taken-for-granted assumptions of the established policies, followed by an analysis of the context in which these assumptions are embedded (Rein, 1983:103). The reason why I have chosen to apply frame-criticism for my framing analysis is because this helps to highlight the underlying assumptions of the established climate change policy. An application of frame creation is focusing on the participants’ experience of the problem. This research method require field research (ibid:104), and since the scope of this thesis does not enable such a method this application is not appropriate. The redefinition and integration of frames could be a latter analysis about the contrasting frames of production and consumption, but in order to answer this thesis question I find frame-creation to be the best alternative.

I intend to interpret and analyze the framing of the Kyoto protocol and its implications for the measuring of greenhouse gas mitigation. This will be a qualitative analysis of the Kyoto protocol and the convention it is recalling. I will attempt to sort out the beliefs, information and values that lead to the particular outcome of actions and solutions. The main material of analysis is the Kyoto protocol and the United Nations Framework Convention on Climate Change. The focus will be on the structural and underlying thoughts, as well as the taken-for-granted assumptions that are leading to the established policy. The analysis will be based on the outcome and its surrounding context.

The second step, which is subordinated, is to search for conflicting frames in the post-Kyoto negotiations. This will be a minor part of the thesis where I will try to find conflicting frames that put the focus of measuring mitigation into a consumption-based perspective. My intension is to search for statements and reports from the years after the ratification of the Kyoto protocol, which propose other framings of the problem.

## 2.3 Limitations

The efforts of actions to mitigate climate change can be measured in several different ways. Excluding the consumption- and production-based measurements, the responsibility could for example be allocated by per capita emissions or cumulative historical emissions. The measurement method gives different responses for the responsibility of the increasing amounts of greenhouse gases in the atmosphere, and put different aspects of justice into discussions. For the scope of this thesis I have decided to limit the focus to the dichotomy of consumption and production, and these two different ways of allocating responsibility. This is because my interest lies in the taken-for-granted assumptions that is the background for the current system, and the implications this brings in a world of inter-connected markets.

Another limitation in this thesis is that I do not intend to describe the power structures of international environmental politics. It might be mentioned briefly in some sections, but my intention is not to investigate which actors have been most influential in the construction of the current framing. Instead the focus will be to interpret the underlying assumptions of the current climate change policy, and how this affected the construction of the Kyoto protocol. The Part where I will attempt to investigate if the established policy has been contested in the post-Kyoto negotiations might give a hint on the structural power, even though it is not intended. Another balance of power that could be important when examining the climate change policy is the influences of the IPCC, and the eventual politicization of science. This will not be in the scope for my study either.

Lastly, I want to mention that the two different ways of measuring by production or consumption, does not implicitly say that the pathway for acting and solutions would change. It is more a question of how the way of measuring would give different responses for the responsibility and burden sharing of climate change mitigation, and thus another way of measuring might shift the agenda of the international negotiations of climate change.

## 3 Analysis

In this chapter I will declare my empirical findings about the Kyoto protocol and its subsequent negotiations for further agreements. To start with I am going to describe the historical context, followed by an analysis of the current framing of the Kyoto protocol. I have interpreted three taken-for-granted assumptions that are central in my analysis, which I will elaborate later in this chapter. Lastly, I will write about conflicting frames in the post-Kyoto negotiations.

### 3.1 The road to the Kyoto protocol

The concern of environmental degradation has been a public topic for decades. Alarming voices about resource limitations raised questions of sustainability in the 1970's. The report *Limits to Growth* brought questions about the existence of ecological limits of economic and population growth to the international agenda and "was enormously significant in the development of environmental thought". (Carter, 2007:42-43) The consequence of the report was that environmental concerns became a part of the mainstream political agenda of development and economics (Hopwood et al, 2005:44). The environmental problem was added to the international political agenda for the first time in 1972 at the United Nations conference on the human environment in Stockholm. At this time the environmental and economical problems were treated separately, which would change in the coming twenty years. (Eckersley, 2004:221)

In the mid 1980's the concept of ecological modernization became the dominant way of conceptualizing environmental issues in policy-making (Hajer, 1995:101). Ecological modernization is characterized by the idea that pollution prevention pays and it frames environmental protection as a positive-sum game since costs and benefits of pollution can be calculated (ibid:26). Another concept that emerged on the policy agenda at this time was sustainable development, which has become the dominant idea shaping international environmental policy. The concept of sustainable development was an attempt to resolve the dichotomy of environmental protection and economic growth. Sustainable development has been appealing to policymakers around the world since it does not put a limit on economic growth, but still addresses the environmental issue. (Carter, 2007:207-208) According to Hajer (1995:26) sustainable development "can be seen as on of the paradigm statements of ecological modernization". The concept was given a broader social meaning in the Brundtland report *Our Common Future* (1987) where it was defined this way:

*“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (WCED, 1987)*

The report laid the foundations for environmental politics in the 1990's, by calling for immediate action (Hajer, 1995:9). After fifteen years of adaptation to the notion of environmental degradation, and the process of interpreting the concept of sustainable development, the report made the realization that it was time for serious policy-making (ibid:12).

The scientific network Intergovernmental Panel on Climate Change, IPCC, was established in 1988. Their objective is to provide expert input into the negotiations on climate change, and the network consists of the world's leading climate scientists. (Bulkeley & Newell, 2010:26-27) Their first assessment report, published in 1990, added stimulus to the concern about climate change (Harris, 2013:43). The accelerating concern about climate change was shown in 1992 during the United Nations conference on environment and development in Rio de Janeiro, also known as Earth Summit, where environmental concern was pushed to the center-stage (Carter, 2007:242). The result of the conference was that governments agreed on an ambitious global action plan for sustainable development called Agenda 21 (O'Neil, 2009:83). They also signed the United Nations Framework Convention on Climate Change, UNFCCC, which was the precursor to the Kyoto protocol. (ibid:79) During the Rio Earth Summit the rolling Conferences of the Parties, COP, was invented in order to negotiate the details on how to limit greenhouse gas emissions and act as the supreme body of implementation for the UNFCCC (United Nations, 1992). During the first COP, in Berlin 1995, the “Berlin Mandate” affirmed the common but different responsibilities, which means that all nations have a common responsibility to respond to climate change, but that developed states should take the lead in the mitigation efforts. During the second conference in Geneva, in 1996, the delegates agreed on negotiating about a legally binding protocol with specific targets for reducing greenhouse gases. The following year the Kyoto protocol was finalized and signed at the third round of the Conferences of the Parties in 1997. (Harris, 2013:44-45)

## 3.2 The Kyoto protocol

The framing of the Kyoto protocol starts with the framework convention from the Rio Earth Summit in 1992. It is common that environmental agreements are negotiated in stages, through the convention-protocol method. This states that a framework convention “sets out the nature, scope, and cause of the problem, directions for future negotiations, and minor obligations on states, such as reporting requirements”. (O'Neil, 2009:79) This is followed by a more detailed protocol, which establishes concrete goals and targets. The climate change regime was composed this way. (ibid) The problem setting is a critical part of the framing since it calls attention to certain aspects of the problem (Rein, 1983:98). In order

to understand the framing of the Kyoto protocol it is thus important to understand the context and especially the convention, which define the problem.

The UNFCCC document was, in part, acknowledging that the adverse effects of the climate are a common concern of humankind, and that human activities have substantially increased the concentrations of greenhouse gases in the atmosphere. The largest historical burden of this lies with the developed countries, even though the emerging necessity for a response needs the “widest possible cooperation” and calls the “common but differentiated responsibilities”. (UNFCCC, 1992:1-3) It recalled the principle of sovereignty of states, which implies that they have the sovereign right to exploit resources within their territory according to their own environmental policy, but without causing environmental damage of other surrounding states. At last it was affirming that “responses to climate change should be coordinated with social and economic development” without causing adverse impacts on the latter. (ibid)

In other words, social and economic development was portrayed as a road to sustainability. In general the UNFCCC document avoided controversial details. The consensus of the principles covered profound disagreements in actual obligations. The formulation of “common but differentiated responsibilities” was interpreted in different ways by developing and developed countries. While developing countries thought of it as the developed countries need to take the lead in the mitigation of greenhouse gases, the developed countries saw more room for selective interpretation. (Roberts & Parks, 2007:3) The convention recognized the need for “developed countries to take immediate action in a flexible manner” (UNFCCC, 1992:2), which further gave opportunities for desired interpretations. The convention raised the different responsibilities of actions because of the historic burden of developed countries. The human impact of the climate was portrayed as a global issue, even though the distribution of emissions was very different between states. With this said, it might be interesting to question that the problem-formulation did not pay more attention to the over-use of resources in some parts of the world.

Further on the convention stated that the over all objective is the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system” (UNFCCC, 1992:4). It stated that each party is committed to limit its anthropogenic emissions of greenhouse gases, but the developed countries should take the lead. The calculations of the emissions were supposed to be accounted with respect to best available scientific knowledge, even though the convention did not state how it should be done. Instead the convention stated that the Conference of the Parties, COP, was supposed to evaluate “the effectiveness of measures to limit the emissions and enhance the removals of these gases”. (ibid:3-11)

The Kyoto protocol is recalling the provisions of the convention. The second article begins: “Each Party included in Annex 1, in achieving its quantified emission limitation and reduction commitments under Article 3, in order to promote sustainable development, shall” (UNFCCC, 1998:1). The accentuation of sustainable development indicates the impact of this concept, which is embedding the environmental, economic and social problems. Later in the article it is stressed

that Annex 1 parties should implement policies that minimize adverse effects on climate change and international trade as well as social, environmental and economic impacts on other countries, especially developing countries. In order to promote a sustainable development in developing countries an establishment of funding, insurance and transfer of technology from the developed states was requested. (UNFCCC, 1998:3-5). In article three of the protocol, the statement about the parties' commitments of reduction of greenhouse gases says:

*“The Parties included in Annex 1 shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments.”* (UNFCCC, 1998:3)

The reductions of greenhouse gases was meant to be at least five percent below 1990 levels, implemented in the commitment period 2008-2012 (ibid). Another implication of the protocol was that the Clean Development Mechanism, CDM, was defined. CDM enables developed countries to achieve credits for emission reduction through funding and implementation of projects that mitigate emissions in other countries. (Bulkeley & Newell, 2010:24) The ambition of this mechanism is to help parties not included in Annex 1 to achieve sustainable development, while also assisting parties in Annex 1 to achieve their goals of quantified emission limitation (UNFCCC, 1998:11).

Climate change has been framed as a problem of the global commons, which need cooperation between sovereign states in order to mitigate human impact on earth. The mitigation of emissions is stated as a national responsibility, since the anthropogenic emissions is calculated within the territory of the parties. This implies that the “essence of the Kyoto framework is negotiations to allocate national rights to greenhouse gas emissions” (Cooper, 1998:67). The Kyoto protocol was formulated as a top-down approach to solve this issue. The international agreement set binding goals and introduced market-based instruments in order to enable reductions of emissions in developed countries, which is enabled through the cap-and-trade architecture of the protocol. It stresses the “common but differentiated responsibilities” (UNFCCC, 1992:1), even though it remain unclear what the different responsibilities are, except for the specific goals of reduction for Annex 1 countries. The abandonment of specific descriptions leaves the question of how it should be interpreted open to the parties of the protocol.

### 3.3 Framing the problem of greenhouse gases

Following the question of this thesis I am going to analyze the framing of the Kyoto protocol and its implications for the way of measuring the mitigation of emission, more specifically, how the production-based measuring could be understood from a frame-critical perspective. I have interpreted three underlying assumptions that are leading the issue framing of emissions into the patterns of production: the marketization and pluralism of environmental politics, the predicament in restricting the need of consumers, and the state-centered norms of international politics.

#### 3.3.1 The marketization and pluralism of environmental politics

To start with, it is important to notice that two forces have dominated the policymaking arena to an emerging extent, which are “a deeply seated economistic reasoning and a politics of growth that cuts across the political spectrum”. (Princen et al, 2002:4) According to Koch (2012:12-13) the nature of political pathways are bound up with power relations and specific group interests, which are expressed in dominant patterns of economic reasoning. One fundamental aspect of economics is supply and demand. The demand describes the consuming behavior of people and is seen as the purpose of the economy. On the other hand, the production of supply has the function of providing the consumers with the goods they desire. (Princen et al, 2002:4) The analytic and policy attention is thus going to be directed to production: “If a problem arises in this production-based, consumer-oriented economy, corrections are naturally aimed at production, not consumption” (ibid:5).

The connection between environmental politics and political economy is vital to understand the framing of how to confront climate change. According to Newell (2008:12) it has been shown that “patterns of trade, production and finance (and the links between them) are central to understanding the contemporary world of environmental politics”. The regulation of environmental problems is conducted in the shadow of parallel concerns with trade and globalization of markets. This implies that alternative approaches to address environmental problems are marginalized, since the terms of the debate are narrowed into political solutions that can be accommodated to the business-as-usual model of contemporary neo-liberalism. (ibid) The market-based approaches of the Kyoto protocol fits into this assumption:

*“The privileging of market-based solutions reflects the interests of certain organizations and nation-states, with their neo-liberal emphasis on using the market and allocating property rights to create incentives to reduce emissions wherever it is cheapest to do so.”*  
(Bulkeley & Newell, 2010:51).



The pluralist model “regards public policy as the outcome of competition among different groups” (Carter, 2007:182). This can be seen as a fundamental obstacle to lifting concerns of consumption to the top of the agenda. This model says that power is diffuse meaning that no single group will dominate decisions, even though the distribution of influence is not equal between different groups. Since environmental policy might have an impact on business, and the primary aim of the government is to keep control over the economy, the economic sectors seeks co-operation and consultancy with business groups. Governments consider the views of producer groups as important, and consequently the policy outcomes will more often reflect the interests of producer groups. (ibid:182-183) The climate change regime seems to follow this pattern, where the influential thoughts of production interests have been promoted. However, one concern with the pluralist model is that it only focuses on direct observable power. A second dimension of power seem to be influential in this issue as well, the power of influential groups to keep decisions off the agenda: “Producer groups can manage conflict before it even starts by using political routines to produce or reinforce dominant values and interests”. (ibid:183) This means that the unwillingness of some powerful groups to measure and restrict consumption might have influenced the non-decision making of this issue.

Restraining consumption would probably lead to an increasingly fundamental reconstruction of developed societies, and thus approaching production is a more achievable pathway. The dominance of economic reasoning in national and international politics restrains the opportunities to deal with environmental issues as a separate problem. Thus, a reasonable strategy might be to “incorporate environmental considerations into the existing market, social, economic, and political institutions that predominate organizational and individual interaction” (Hoffman & Ventresca, 1999:1384). By reframing the concept of environmental issues, it could fit into the existing context (ibid:1385). My interpretation of the Kyoto protocol and its convention is that this has occurred. The marketization of the global commons, and ecological modernization, is deemed to create win-win solutions for environmental action. These metaphors of win-win solutions enable the focus of production to dominate the debate, since it tells us that we can have our pie and eat it too. The reasoning is that by promoting a more sustainable production people will not need to change their consumption patterns.

The flexible and cost-effective market instruments are a central feature in the weaker version of ecological modernization that has been widely incorporated into the climate regime. According to Hajer (1995:30) the concept of ecological modernization has been the most credible way of talking about environmental policy since the 1980’s. Furthermore, “[e]cological modernization, or advanced liberal government, today provides the dominant discursive space in which climate change is interpreted and conceptualized” (Bäckstrand & Lövbrand, 2007:130-131). One of the elements of ecological modernization is that pollution prevention pays, and it generally understates the importance of consumption (Carter, 2007:231). The concept is rearticulating the dichotomy of environment and economic growth by making them compatible (Paterson & Stripple, 2007:154). Thus the concept seems to assume that greening the processes of

production allows consumption to be infinite (Carter, 2007:231). The ecological modernization is thus strengthening thoughts of prospects for the business-as-usual approach to climate change. The Kyoto protocol was outlined as a short-term target, and has thus been distracting for the long-term challenge of stabilization of greenhouse gases (Koch, 2007:176). Ecological modernization has been an attempt to solve the crisis in the short term, but since it does not consider the structural problem of over-consumption in the developed countries, it brings questions about whether this process would be convenient when the middle-class is growing in the world.

### 3.3.2 The predicament in defining the need of consumers

Questions about material consumption are often downplayed since they get into the core of peoples' lives and are thus controversial. For this reason governments often believe that this should not be a "subject of diplomatic scrutiny, let alone international regulation". (Harris, 2013:95) Even though issues of consumption have been seen as an underlying factor causing environmental degradation for a long time, political leaders tend to not get re-elected if they address that people need to sacrifice their consumption for the global community and future generations (O'Neil, 2009:42). Thus, political leaders are afraid of questioning people's consumption patterns:

*"People consume to meet needs; only individuals can know their needs and thus only the individual can judge how to participate in the economy. Consumption becomes sacrosanct."* (Princen et al, 2002:5)

There is a predicament in defining a plausible amount of consumption. First of all, the idea of consumer sovereignty, which is an important part of mainstream economic reasoning, says that the preferences of consumers determine the supply of goods (Princen et al, 2002:1). The consumer behavior determines the management of resources. Questions of resource management are thus generally framed as production problems (Princen, 1999:352). The reason for choosing a production-based approach to measure the mitigation of climate change can be seen as a logic approach, in order to strive for more efficient production (Princen, 2002:26). However, this way of reasoning will not get to the core of the problem. While more people of the world are going to drive cars and consume at the same amount that people do in developed countries, the absolute values of greenhouse gas emissions will probably rise, even though the production is more efficient. The Kyoto protocol could thus be interpreted as a short-term solution for mitigation of greenhouse gases, since it does not consider what would happen when more people consume to the same extent of people in developed countries.

The reason why it is problematic to define what amount of consumption is plausible is because it is hard to determine if they consume to fulfill personal needs, or if they are caught up in social and economic systems that lead them striving for affluence. Ropke has summed up some features of the modern

lifestyle: “individual economic independence, the ease and practice of greater mobility, diets comprising more meat and foods from around the world, much greater convenience and comfort in daily life, /.../ intensified use of time, /.../ and greater variation and novelty across all aspects of life” (Harris, 2013:102). This lifestyle means that people consume for normal reasons, like providing for their family and finding meaning in life, and thus changing this behavior is difficult (ibid). A definition of what people actually need to consume is thus easily interpreted differently by different people, and has been changing over time while people have been more habituated with this modern lifestyle. Another reason might be found in cognitive explanations of political behavior. Would it be possible for leaders of developed countries to accept a framework that would fundamentally affect the lifestyles of their citizens? Questions of equitable amounts of consumption are hard to address to the populations of developed countries.

The concept of sustainable development, and its impact on the environmental policy, is important to keep in mind here. Sustainable development shifted the terms of the debate from traditional environmentalism, with a focus of environmental protection, into an action of sustainability that requires a trade-off between social, economic and environmental priorities (Carter, 2007:211). According to the popular conceptualization of sustainable development, the need of present and future generations should be met. However, the lack of a clear definition of what exactly the needs amount to, enable talking about sustainability without integrating consumption (Princen et al, 2005:1). In fact, “the Brundtland report was rather quiet on the need to change consumption patterns in the North, no doubt because its authors recognized that the issue was political dynamite” (Carter, 2007:219). Sustainable development is formulated as a significantly important response for climate change in the Kyoto protocol and its convention. The fact that the concept does not articulate any firm definition of needs in terms of consumption mean that it is not really questioning the affluence in some parts of the world.

### 3.3.3 The state-centered perspective of international politics

The Westphalian system of sovereign states has been very influential for the course of climate change. Governments of states are “the only actors with decision-making authority in the international system” (O’Neil, 2007:49). Thus nation-states have been seen as the natural actors in order to respond to climate change (Harris, 2013:34). The Kyoto protocol is no exception to this. As I stated above, the protocol and its convention qualified the responsibility of states to restrict the emissions embodied in production within their territories. At the same time it was recalling the sovereignty of states, and their right to exploit resources within their territory. Another implication of the state-centered perspective is the principle of “common but differentiated responsibilities” which is referring to the responsibilities of states. It is the cooperation among states, or lack of it, that has determined the course of climate politics (Harris, 2013:34). The negotiations of

the climate change regime has thus followed the patterns which is “consistent with the more fundamental Westphalian norms of the international system and the protection of national interests” (ibid:40). Thus, national interests play a crucial role in determining the course and outcomes of international environmental politics (O’Neil, 2007:49).

The framing of burden sharing, and hence what justice entails, has been structured in terms of the rights and responsibilities of states (Paterson & Stripple, 2007:156). The question of how to distribute the allocation of greenhouse gases has been a statist project with the take-off point, and reinforcement, of the concept of state sovereignty (Harris, 2013:37). This creates a potential problem because states historically had “certain internal dynamics which have helped to produce environmental change” (Paterson, 2001:43). One problem is that state building, in order to intensify the control over domestic territory and to ensure safety from external actors, has meant that states have been promoting growth and accumulation. Historically this incentive has mainly been due to reasons of warfare, but the importance of this incentive has been shifting more to evolve and promote the welfare state. (ibid:43-44) The discipline of critical international political economy has increased the attention to how states define their policies in terms of comparative international competitiveness. The primary task of the state is to make economic activities within their territory more competitive. (Eckersley, 2004:65) Some of the clear national interests are economic vitality, jobs, financial prosperity and connections with world trade (Harris, 2013:38). A primary quest of the competitive states is to attract capital in order to perform better in the national economy, which “exerts a downward pressure of domestic and global environmental standards, setting off a race to the bottom” (Eckersley, 2004:66). The wealth of a nation is counted in GDP, which is the “total market value of the goods and services produced in the nation’s economy during a specific period of time” (Encyclopaedia Britannica, “GDP”). A state that is producing more for internal consumption, and thus have a higher export than import, is deemed a wealthier nation. Since a state is benefiting from the domestic production it seems to be natural to restrict the production. This is because it constrains the unsustainable manufacturing that probably would maximize production, exports and profits in the short-term.

Even though states have a significant influence of processes within their territories that cause climate change, it has been increasingly recognized that they have limited opportunities to make their society and economy adapt to climate change (Bulkeley & Newell, 2010:3). Actors that increasingly are operating across national borders cause emissions within state territory and thus it is hard for the state to manage the processes that cause emissions (ibid). At the moment, the nation-state has limited potential to proclaim environmental issues to be superior over economic growth of the nation. This could change if the world reaches a tipping point, when awareness of the consequences of a changing climate affects more people. Another possible solution would be to frame the adaption of climate change in terms of economic benefits, for example by taking the lead in the reformation into a modern sustainable lifestyle.

### 3.4 Conflicting frames in the post-Kyoto negotiations

According to Bäckstrand and Lövbrand (2007:124) the climate debate has been “strongly dominated by the market-driven and cost-effective narratives of ecological modernization” since the signing of the Kyoto protocol. Ecological modernization has rearticulated the relationship between environment and economic growth, and made them complementary. Thus, the articulation of global warming as a business opportunity has been gaining ground. (Paterson & Stripple, 2007:154) But, in the post-Kyoto negotiations the struggle of meaning of climate change has been emerging again (Bäckstrand & Lövbrand, 2007:124). The consumption-based approach to mitigation has been discussed among researchers, but in the post-Kyoto debates this method has been largely absent (Peters & Hertwich, 2008:53). A review by Bodansky et al (2004) that covers 44 different proposals for approaches in the post-Kyoto negotiations does not even mention the consumption-based approach. According to Princen et al (2002:8) concerns of consumption are often dismissed on their own terms when they are raised in mainstream environmental circles. Instead they are “converted to questions of production and technology” (ibid). For this reason it is hard to find discussions about consumption-based approaches for the mitigation of greenhouse gases in the post-Kyoto negotiations. However, I have found some cases where concerns of consumption have been taken up in the agenda.

To start with, questions of affluent lifestyles in the developed countries have been raised by some developing countries. Even though it does not necessarily relate to a consumption-based measuring, it elucidates an opposing framing of the problem. One example is from the president of Uruguay, Jose Mujica, who said in a speech during the UN Rio Earth Summit in 2012 that we have to re-examine our lifestyles since the environmental degradation is a cause of a larger disease of mankind (Al Jazeera, 2013). He points out that the “model of development and consumption, which is shaped after that of affluent societies” is the problem, and that it is “time to start fighting for a different culture” (ibid). Another similar critique is from the ambassador of the small island states, Lionel Hurst, who in a speech in 2003 proposed that:

*“The most populous and wealthiest of the world face a moral challenge greater than colonialism or slavery. They are failing in that challenge. Men [sic] have lost reason in the fossil fuel economy... Inhabitants of small islands have not agreed [to be] sacrificial lambs on the altar of the wealth of the rich.”* (Bulkeley & Newell, 2010:36)

China, along with other rapidly industrializing countries, claims that their emerging domestic emissions are a consequence of demand for cheaply manufactured goods in developed countries (Bulkeley & Newell, 2010:38). China, which is the world’s biggest polluter of greenhouse gases since 2006 (Harris, 2013:72), has been rejecting the production-based accounting of emissions during the post-Kyoto negotiations. Chinese negotiators have been using the current production-based accounting as a key argument to “adhere the country’s stance of

rejecting caps on emissions”. (Witthaus, 2012:65) At the COP 13 in Bali a Chinese minister argued that China’s increase in pollution is partly a result of relocation of manufacturing, and thus emissions embedded in their export should be taken into account (ibid:64). It is not a coincidence that the world’s biggest polluter today might be interested in pushing this measuring method to the agenda. China is by far the greatest exporter of carbon dioxide emissions embodied in exported goods in the world (Davis & Caldeira, 2010:3). Industrializing countries, as well as China, claim that they should not be penalized for the fact that developed countries have been able to “out-source the most carbon and energy-intensive stages of the production process to parts of the world where it is cheapest to do so” (Bulkeley & Newell, 2010:38).

Another interesting actor that has raised the concern about consumption-based measuring is the United Kingdom. The concern has however only been raised on a domestic policy level through the report *The Road to UNFCCC COP 18 and Beyond* ordered by the House of Commons. The United Kingdom has reached an impressive 20 percent reduction of greenhouse gases from domestic production between 1990 and 2009, but if the emissions embedded in imported goods for consumption is calculated the state would show a 20 percent rise in emissions since 1990 (House of Commons, 2012:25). According to the report, global emissions have not fallen because imported goods have offset domestic production for consumption, and thus it states that “there is a need to address these consumption based emissions but currently policy instruments do not allow us to do so” (ibid). The authors of the report recommend an acknowledgement of the concern of consumption, even though they do not think it could be put on the international agenda:

*“As our report highlighted, we recognize the enormous difficulty of achieving a legally binding agreement on emissions reductions based on consumption rather than territorial emissions, not least because all international negotiations hitherto have been based on the latter. We are therefore not proposing that consumption based emissions should immediately be introduced into the international process.”* (ibid:26)

The United Kingdom has adopted the consumption-based measuring as an official government indicator in order to evaluate the effectiveness of mitigation efforts (Barret et al., 2013:453), but as stated above, the state has no desire to put this concern on the international agenda.

Sweden is another example of a country with higher consumption-based emissions than production-based. Both the United Kingdom and Sweden have reported satisfying mitigation of greenhouse gases according to their commitments, but governmental agencies of both countries have reported that their total carbon emissions would be higher if the imported goods for consumption would be calculated (Isenhour, 2012:304). In the case of Sweden the Swedish Environmental Protection Agency has reported that if the emissions from consumption is estimated the total carbon emissions will show an increase by nine percent in the country during the period 2000-2008 (SEPA, 2013:9). Even though both the United Kingdom and Sweden have investigated their consumption-based

emissions, I have not found any attempts by these states to address the consumption-based measuring in the post-Kyoto negotiations. This might be a verification of the impact that the framing of mitigation has in the negotiations, and how questions of consumption get reframed into the convenient problem-formulations.

As this last section has shown the concern of consumption-based, including affluent consumption has been questioned after the ratification of the Kyoto protocol. But in the international negotiations of the post-Kyoto protocol, the consumption-based approach has been absent, except for the case of China during COP 13. This can be seen as a result of the current framing that neglect the measuring of consumption. Another reason could be the fact that measuring consumption would be harder, which causes a greater margin of error. For this reason the production-based measuring might be seen as the only possible way of measuring at the moment. However, if this would be the case it does not give an answer to why the questions of consumption are absent in the negotiations. Yet another argument, possibly more realistic, might be that the stressing situation of making further agreements for the mitigation might impose that the politicians do not want to lose time by reflecting on new approaches. Thus it might be easier and more efficient to develop the agreements from the Kyoto protocol. A reframing would be time-consuming for the development of a new protocol, and thus politicians might see the current framing as the most applicable option in the near future.

## 4 Conclusion

How can the current production-based measuring of greenhouse gases be understood from a frame-critical perspective? My interpretations from this study is that the marketization of global politics, the concepts of sustainable development and ecological modernization, and the state-centered perspective are leading the policy of climate change into the production-based measuring of mitigation. These aspects are widely enrolled and embedded in the Kyoto protocol and its convention. This demonstrates how climate change has been framed as a problem of over-use of common resources where the lack of cooperation between states has lead to an unsustainable management of resources. The neoliberal belief in the market, the predicament in restricting consumer behavior, and the state-centered norms of international politics are the three taken-for-granted assumptions that I have interpreted in my frame-critical analysis. These three assumptions are leading the framing of climate change into a problem of unsustainable and inefficient manufacturing that needs to be resolved through an international regulation of anthropogenic emissions from production.

The market-driven solutions for climate policy reflect a deeply seated economic reasoning, which has been embedded in the conceptualizing of climate change. During the recent decades the conceptualizing of environmental degradation got embedded with economic growth through the concept of sustainable development. The fact that it would be hard for politicians in developed countries to address the concern of affluent consumption is probably a core reason why the concept of sustainable development was very ambiguously formulated on the notion of needs and consumption. The sovereignty of individual consumers is a fundamental part of economic reasoning of supply and demand, and in liberal policy the consumer behavior is generally not seen as a political concern. Keeping this in mind, it might be hard to legitimize a restriction on consumption through an international agreement. For this reason, it might be more achievable to address the problem through a state-centered perspective. The general thought of environmental policy today seem to be that consumers do not need to change their behavior, but the suppliers of goods need to produce more efficiently by emitting less carbon dioxide or other greenhouse gases. Greener production could thus be understood as an incentive for the welfare state, since this enable states to keep their growth on the same path without restricting consumption. Instead of focusing on conserving common resources, the goal is a development that will enable the world to keep growing in a sustainable way.

A possible critique of my findings is that they are based on my interpretations. This critique is relevant to take into consideration, since the epistemic status of a frame must be questioned. The taken-for-granted assumptions that I have interpreted might be misinterpreted, or the reason why the climate change policy



is aiming for the production might be nothing more than the fact that it was the only manageable way. With this said, I want to declare that there might be other reasons as well for the outcome of the Kyoto protocol. Thus, the observant reader might want to question the benefits of this study. My answer to this is that these interpretations can give a hint on the certain assumptions that influence climate change policy. In order to understand the policy outcomes it is helpful to comprehend the way the problem is conceptualized, and how taken-for-granted assumptions affects the way issues are understood. The strength of this study is that I have investigated the way climate change is problematized, and the impacts of this conceptualization.

In this study I have interpreted the framing of the Kyoto protocol, by analyzing the outcome of the treaty. The scope of this thesis is not taking regard of the negotiations preceding the protocol though, which might be a flaw since this would give a broader understanding for the framing. Another implication of the loss of interpretations of different stances of policy is that I have not found the alternative problem-formulations, and thus I have not been able to analyze whose interests is represented in the outcome of the treaty. For this reason, I recommend further research on alternative framings in the preceding negotiations and why this certain problem-formulation became the institutionalized framing. This could give a broader understanding for the reasons of the production-based framing of the Kyoto protocol, and could tell more about the actors behind the different frames.

Since the territorially defined production-based measuring for mitigation of greenhouse gases was agreed in the Kyoto protocol it seems likely this will be the policy measure going forward. The emerging research on the benefits of consumption-based measuring could promote more space for conflicting frames in the negotiations for future agreements. It is important to keep in mind that both the consumption- and production-based measurements have benefits and drawbacks. One alternative that might take place in the future could be a more fragmented framework, which takes consideration of both production and consumption. It is hard to predict the future for a consumption-based measuring though since it is currently quite absent in the post-Kyoto negotiations.

An agreed accounting of consumption-based emissions could help to reframe the problem. In order to change the pathway, if it is desirable, a reframing of the problem might be important. A reframing that put more focus on affluent consumption, and less focus on the state and economic reasoning could change the view of the problem of anthropogenic emissions of greenhouse gases. This raises a question: is this a pathway that people of the world desire at the moment? Thus it might be hard to raise the question of consumption on a political level in the future as well. Maybe a fundamental change of peoples' lifestyles will not take place unless the impact of climate change shows severe consequences for the world and the humans inhabiting it. Once these impacts get more substantial the world might reach a tipping point, which could imply that the over-consuming people realize that they need to change their consumption patterns fundamentally in order to meet the need of current and future generations.

## 5 References

- Al Jazeera, 2013. "Power privilege and climate change: A tale of two presidents". News Article. 2013-02-08. [Electronic resource] <http://www.aljazeera.com/indepth/opinion/2013/02/201326101914520813.html>. Purchased: 2013-12-28
- Barret, John; Peters, Glen; Wiedmann, Thomas; Scott, Kate; Lenzen, Manfred; Roelich, Katy; Le Quéré, Corinne, 2013. "Consumption-based GHG emission accounting: a UK case study". *Climate Policy*, Vol. 13, No. 4, pp 451-470
- Bodansky, Daniel; Chou, Sophie; Jorge-Tresolini, Christie, 2004. "International Climate Efforts Beyond 2012: A Survey of Approaches". Pew Center of Global Climate Change. [Electronic resource] <http://www.c2es.org/docUploads/2012%20new.pdf>, accessed 2013-12-28
- Bulkeley, Harriet & Newell, Peter, 2010. *Governing Climate Change*. Oxon: Routledge
- Bäckstrand, Karin; Lövbrand, Eva, 2007. "Climate Governance Beyond 2012: Competing Discourses of Green Governmentality, Ecological Modernization and Civic Environmentalism". In Pettenger, Mary E. (Ed.) *The Social Construction of Climate Change: Power, Knowledge, Norms, Discourses*. Hampshire: Ashgate Publishing Limited
- Carter, Neil, 2007. *The Politics of the Environment: Ideas, Activism, Policy*. 2nd ed. New York: Cambridge University Press
- Cooper, Richard N., 1998. "Toward a Real Global Warming Treaty", *Foreign Affairs*, Vol. 77, No. 2, pp 66-79
- Davis, Steven J. & Caldeira, Ken, 2010. "Consumption-based accounting of CO<sub>2</sub> emissions". *PNAS*, early edition, pp 1-6 [electronic resource] <http://www.pnas.org/content/early/2010/02/23/0906974107.full.pdf+html>, accessed: 28<sup>th</sup> of December 2013
- Eckersley, Robyn, 2004. *The Green State*. Cambridge, MA: MIT Press
- Encyclopaedia Britannica, 2013, "GDP". [Electronic resource], last updated 2013-2-20, <http://global.britannica.com/EBchecked/topic/246647/gross-domestic-product-GDP>, accessed 2014-01-04
- Hajer, Maarten A., 1995. *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford: Clarendon Press
- Hajer, Maarten & Versteeg, Wytse, 2005. "A decade of discourse analysis of environmental politics: Achievements, challenges, perspective". *Journal of Environmental Policy & Planning*, Vol. 7, No. 3, pp. 175-184
- Harris, Paul G., 2013. *What's Wrong with Climate Politics and How to Fix It*. Cambridge: Polity Press
- Hoffman, Andrew J.; Ventresca, Marc J., 1999. "The Institutional Framing of Policy Debates: Economics Versus the Environment", *American Behavioral Scientist*, Vol 42, No. 8, pp 1368-1392

- Hopwood, Billy; Melor, Mary; O'briend, Geoff, 2005. "Sustainable Development: Mapping Different Approaches", *Sustainable Development*, 13, pages 38-52
- House of Commons, 2012. "The road to UNFCCC COP 18 and beyond". London: The Energy and Climate Change Committee, available at <http://www.publications.parliament.uk/pa/cm201213/cmselect/cmenergy/88/88.pdf>. accessed 2013-12-29
- Isenhour, Cindy, 2012. "The Devil in the Deal: Trade Embedded Emissions and the Durban Platform". *Ethics, Policy & Environment*, Vol. 15, No. 3, pp 303-308
- Koch, Max, 2012. *Capitalism and Climate Change: Theoretical Discussion, Historical Development and Policy Responses*. Hampshire: Palgrave Macmillan
- Laws, David & Rein, Martin, 2003. "Reframing Practice". In Hajer, Maarten A. & Wagenaar, Hendrik (Eds.) *Deliberative Policy Analysis: Understanding Governance In the Network Society*. Cambridge: Cambridge University Press
- Methmann, Chris; Rothe, Delf; Stephan, Benjamin, 2013. "Introduction: How and why to deconstruct the greenhouse". In Methmann, Chris; Rothe, Delf; Stephan, Benjamin (Eds.) *Interpretive Approached to Global Climate Governance: (De)constructing the Greenhouse*. Oxon: Routledge
- Newell, Peter, 2008. "The political economy of global environmental governance", *Review of International Studies*, Vol. 34, No. 03, pp 507-529
- O'Neil, Kate, 2009. *The Environment and International Relations*. New York: Cambridge University Press
- Parks, Bradley & Roberts, J. Timmons, 2006. "Environmental and Ecological Justice". In Betsill, Michele M; Hochstetler, Kathryn; Stevis, Dimitris (Eds.) *International Environmental Politics*. Hampshire: Palgrave Macmillan
- Paterson, Matthew, 2001. *Understanding Global Environmental Politics: Domination, Accumulation, Resistance*. Hampshire: Palgrave
- Paterson, Matthew; Stripple, Johannes, 2007. "Singing Climate Change into Existence: On the Territorialization of Climate Policymaking". In Pettenger, Mary E. (Ed.) *The Social Construction of Climate Change: Power, Knowledge, Norms, Discourses*. Hampshire: Ashgate Publishing Limited
- Peters, Glen P.; Hertwich, Edgar G., 2008. "Post-Kyoto greenhouse gas inventories: production versus consumption". *Climatic Change*, Vol. 86, No. 1-2, pp 51-66
- Peters, Glen, 2008. "From production-based to consumption-based national emission inventories". *Ecological Economics*, Vol. 65, No. 1, pp 13-23
- Peters, Glen; Minx, Jan C.; Weber, Christopher L.; Edenhofer, Ottmar, 2011. "Growth in emission transfers via international trade from 1990-2008". *PNAS*, Vol. 108, No. 21, pp 8903-8908
- Pettenger, Mary E., 2007. "Introduction: Power, Knowledge and the Social Construction of Climate Change". In Pettenger, Mary E. (Ed.) *The Social Construction of Climate Change: Power, Knowledge, Norms, Discourses*. Hampshire: Ashgate Publishing Limited
- Princen, Thomas, 1999. "Consumption and environment: some conceptual issues". *Ecological Economics*, Vol. 31, No. 3, pp 347-363

- Princen, Thomas, 2002. "Consumption and Its Externalities". In Princen, Thomas; Maniates, Michael; Conca, Ken (Eds.) *Confronting Consumption*. Cambridge: The MIT Press
- Princen, Thomas; Maniates, Michael; Conca, Ken, 2002. "Confronting Consumption". In Princen, Thomas; Maniates, Michael; Conca, Ken (Eds.) *Confronting Consumption*. Cambridge: The MIT Press
- Rein, Martin, 1983. "Value-Critical Policy Analysis". In Callahan, Daniel & Jennings, Bruce (Eds.) *Ethics, the Social Sciences, and Policy Analysis*. New York: Plenum Press
- Rein, Martin & Schön, Donald, 1993. "Reframing Policy Discourse". In Fischer, Frank & Forrester, John (Eds.) *The Argumentative Turn in Policy Analysis and Planning*. London: UCL Press
- Rein, Martin & Schön, Donald, 1996. "Frame-Critical Policy Analysis and Frame-Reflective Policy Practice". *The International Journal of Knowledge Transfer and Utilization*, Vol. 9, No. 1, pp 85-104
- Roberts, J. Timmons; Parks, Bradley C., 2007. *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Policy*. Cambridge: MIT Press
- SEPA (Swedish Environmental Protection Agency), 2013. "Consumption-based indicators in Swedish environmental policy". Stockholm: Naturvårdsverket. [Electronic resource] <http://www.naturvardsverket.se/Documents/publikationer6400/978-91-620-6508-9.pdf>, accessed: 2014-01-02
- The Guardian, 2011. "Carbon cuts by developed countries cancelled out by imported goods". News article. 2011-04-25. [Electronic source] <http://www.theguardian.com/environment/2011/apr/25/carbon-cuts-developed-countries-cancelled>. accessed: 2013-11-24
- The Guardian 2, 2011. "What is the Kyoto protocol and has it made any difference?". News article. 2011-03-11. [Electronic source] <http://www.theguardian.com/environment/2011/mar/11/kyoto-protocol>, accessed: 2013-12-11
- UNFCCC, 1992. "United Nations Framework Convention on Climate Change". UN Doc FCCC/INFORMAL/84. New York: United Nations, available at <http://unfccc.int/resource/docs/convkp/conveng.pdf>, accessed 7<sup>th</sup> of December 2013
- UNFCCC, 1998. "Kyoto Protocol to the United Nations Framework Convention on Climate Change". UN Doc FCCC/CP/L.7/Add.1. Kyoto: United Nations, available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf>, accessed 12<sup>th</sup> of December 2013
- Varian, Hal R., 2010. *Intermediate Microeconomics: A Modern Approach*. 8<sup>th</sup> ed. New York: W. W. Norton & Company
- Wagenaar, Hendrik, 2011. *Meaning in Action: Interpretation and Dialogue in Policy Analysis*. New York: M.E. Sharpe
- WCED (World Commission on the Environment and Development), 1987. *Our Common Future*. Oxford University Press (The Brundtland Report)
- Witthaus, Ben, 2012. *The International Climate Regime and Its Driving-Forces: Obstacles and Changes on the Way to a Global Response to the Problem of Climate Change*. Hamburg: Diplomica