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Expert Knowledge Within a Prominent Environmental Think Tank

A critical discussion on the characteristics of *usable knowledge*

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Abstract

The global climate change negotiations are experiencing a rescaling of international actors. Several of these actors are scientific communities that aim at providing policy recommendations based on expert knowledge for the negotiations. The literature within the science-policy nexus is applied to investigate the significance of expert communities however the literature does not target environmental think tanks. For this reason, this thesis aims at exploring 1 of the top 70 environmental think tanks in the world namely Environment for Development by applying the theoretical concept of *usable knowledge*. With the purpose to give an understanding of what the characteristics of *usable knowledge* are within Environment for Development. The concept reflects on scientific actors' ability to produce expert knowledge by providing a set of requirements that can enhance scientific influence. By analysing Environment for Development's procedural process as well as their published documents the characteristics of *usable knowledge* will be investigated. This thesis reaches the conclusion that Environment for Development as a highly ranked environmental think tank, has limited *usable knowledge.* Therefore there might be reasons to be critical toward Environment for Development and to stress the need for future research to further the understanding of environmental think tanks significance for the international policy process.

Key words: science-policy nexus, characteristics, usable knowledge, environmental think tank, Environment for Development
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1 Introduction

The global climate change negotiations have become more complex, targeting numerous environmental problems and are experiencing an increased fragmentation among actors. In the negotiations new developmental goals are discussed and implemented, however, the process is criticised for being too slow, with no radical changes since 1992 when the fist meeting on climate change took place. As a response to this, combined with the rapid increase in global warming, more environmental actors on the global arena are participating in the climate change negotiations (Andonova & Mitchell 2010; Biermann et al. 2010; Biermann & Pattberg 2012; Pattberg et al. 2012).

With this in mind, the UN (United Nations) has conceptualized this matter and thus, the climate negotiation's structure has become more complex and comprehensive with the commitment to include non-state actors, in which the aim is to enhance international cooperation for sustainable development (Biermann 2013). The UN states that Rio+20 conference should be seen as an opportunity to launch a new vision of international cooperation for collective actions and comprehensive partnership, to create and implement a more advanced level of sustainable development. The partnerships are argued to contribute to the post-2015 development agenda and facilitate the application of the agreements at Rio+20 (UNCSD 2012). Furthermore, the conventions within the UN on climate change and sustainable development highlight that global partnerships create cooperation and enhance actor's capacity to learn from each other's experiences (Mert & Chan 2012:29).

More actors within the international arena are expected, given that multilateralism within the climate regime is argued to promote increased implementation and effective sustainable development (GAE 09-10/04/2014:1-3; SDKP; Biermann 2013). Scholars stress the importance of the potential impact that global partnerships might have on the climate agenda. Mert and Chan (2012:21) argue that all actors are "employed in a political context, serve political goals and generate political challenges". Therefore a better understanding of the role that these multiple actors have on the climate change process is needed. Furthermore, in the current discussion on global environmental politics, scientists are often quoted and referred to. During the last decade science networks have shifted towards a greater institutionalization of scientific input into global policy-making. However the role of science in global environmental governance is a matter of scrutiny. The most cited authors within the science-policy nexus generally examine the influence of science on policy processes and illuminate different factors that shape the effects for global policy-making (Gupta et al. 2012:69-71; Biermann 2002; Grundmann 2007; Gupta 2010; 2008; Haas 1992; Jasanoff 2014). Scientific networks are considered to play a crucial part in shaping and directing

different issue areas within the global climate regime through the interaction of scientific knowledge and policy-making (Biermann 2001; 2002; 2013; Jasanoff 2013; Knaggård 2010). Most literature within the science-policy nexus has highlighted the role of IPCC (Intergovernmental Panel on Climate Change) for global environmental politics, however there is a lack of literature on other epistemic communities. More research is needed to better understand the rescaling of scientific actors associated with global environmental politics and what potential effects these might have on the decision-making process (Haas 2004; Siebenhüner 2002; 2003; Humle & Mahony 2010; Grundmann 2007).

1.1 Purpose and research question

The purpose of this thesis is to gain a better understanding of and to explore an environmental think tank, which aim at influencing environmental politics and policy-making in order to fill some of the research gaps expressed above. I will analyse an environmental think tank to describe its procedural process and explore its scientific consensus in search of *usable knowledge.* In short, *usable knowledge* is a theoretical framework where science is most likely to have an impact on policy. However, this study will not focus on: if the think tank influences policy-making or how it impacts. Instead it wishes to explore the possibilities it might have for influencing policy by obtaining the characteristics of *usable knowledge.*[1] A descriptive study will be the objective of my research, and the reason why I have chosen descriptive and not explanatory is because my case study is in a new field of research. Therefore before explaining why and how this think tank influences policy-making I argue that there is a more prominent need to get a full understanding of this specific scientific actor and see if further research needs to be done on this environmental think tank (Punch 2005:14-16). If it possesses characteristics of *usable knowledge* then further research on how and why it influences policy-making is significant. However, if this is not the case and it lacks characteristics of *usable knowledge* then further explanatory research is necessary in order to understand why the think tank is not able to produce legitimate and credible science for decision-makers. Hence, my paper aims to outline and map the characteristics of *usable knowledge* to create a comprehensive understanding that can be useful for further study. The study will be delineated to theory within the science-policy nexus and it will investigate certain elements that hamper or foster *legitimacy* and *credibility* that are two key characteristics of *usable knowledge* (Haas 2004; Siebenhüner 2002; 2003). The outcomes of this research will enable me to answer the following research question:

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1 Further explanation of the theoretical framework is referred to in the theoretical chapter.

What are the characteristics of *usable knowledge* within Environment for Development?

1.2 Definition of a Think Tank

This thesis aims at understanding certain design elements that hamper or increase the amount of *usable knowledge* to understand if an environmental think tank could influence policy. Therefore a definition of a "think tank" is required to increase the internal validity of this study and to answer the research question in a clear and structured manner (Esaiasson et al. 2007:63-64). The concept "think tank" was first introduced during World War II as a forum where military and civilian experts discussed invasion plans and other military strategies. However, the concept has since been developed, and today the concept can be applied on multiple actors within development (McGann & Sabatini 2011:3). Most scholars use a similar definition on think tanks, the one of McGann and Sabatini namely; "[t]hink tanks are organizations that generate policy-oriented research, analysis and advice on domestic and international issues, therefore enabling policymakers and the public to make informed decisions about public policy issues" (McGann & Sabatini 2011:14).

In addition, it is argued that think tanks often aim to act as a bridge between the academic and the policymaking communities with a purpose to translate research and science into a language that is understandable for policy-makers and the public (Schlesinger 2009). McGann and Sabatini's (2011) definition goes hand in hand with Haas' (1992) categorisation of epistemic communities. Haas consider think tanks to be an epistemic community that have significant leverage on policy decisions and, more concretely, "[a]n epistemic community is a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area" (Haas 1992:3). This thesis therefore strives to achieve validity by applying a definition that is in agreement with the theoretical framework that will be implemented in this study (Esaiasson et al. 2007:61).

1.3 Disposition

So far, this thesis has contextualized the significance of scientific actors within the global environmental regime and articulated the purpose with this study. Secondly, this study will address the method carried out to answer the research question. In this section the case study design will be delineated and elaborated

upon. In addition, this section will present and explain the conceptual framework applied as a tool to operationalize the theoretical framework presented in the following chapter. The theoretical chapter explains the theoretical perspective applied in this study and elaborates on the characteristics of *usable knowledge* in detail. In the next chapter, the concept of *usable knowledge* on the empirical material and analyses it in connection to theory, is applied. This is followed with a critical discussion that questions the science-policy perspective interpreted by the theoretical framework applied in this study. In the final chapter conclusions are drawn in order to answer the research question.

2 Methodology

To answer the research question this thesis utilizes a qualitative research design and an exemplifying case study where the specific case is chosen with the research question in mind (Bryman 2012:70-71). The research question is both theoretical and empirical in nature and therefore the case that will be investigated was selected by taking into consideration the empirical relevance as an environmental think tank, as well as the theoretical framework. Moreover, the selected case study is a prominent case where the think tank is one of the top 70 environmental think tanks in the world in 2013 according to TTCSP (Think Tanks & Civil Societies Program) (GGTTTI Report 2014). This paper aims to describe and explore the characteristics of *usable knowledge* within the highly ranked think tank. The environmental think tank is EfD (Environment for Development) and the specific case has been chosen due to its relevance to the research question. To answer the theoretical section a detailed examination of the characteristics of *usable knowledge* within EfD will be examined (Bryman 2012:67-70; Punch 2005:144). However, a common criticism of case study design focus on the issue of generalizability. A case study design often focuses on the complexity and entirety of a specific case and therefore the study cannot be representative for other cases. Therefore to enhance the external validity of this thesis, the focus is not to generalize but rather to contribute to the understanding of think tanks in which future research might benefit from this specific case (Punch 2005:146-147; Bryman 2012:70; Esaiasson et al. 2007:64).

The theoretical framework of *usable knowledge* might give certain insights into the possibility for EfD to influence policy-making. Because of think tanks' increased influence on global environmental governance these specific types of actors become interesting to examine. The reason why this thesis aims at exploring the characteristics of *usable knowledge* within a top environmental think tank, is to stress the importance of future research to scrutinise think tanks because there might be reason to be critical towards their policy recommendations. Think tanks are in nature private independent actors that are supposed to give objective policy recommendations, however the majority of think tanks are not able to sustain their independence due to reasons such as funding (McGann & Sabatini 2011:15-17). With this in mind, this study, with guidelines from the conceptual framework, aims to critically investigate a highly ranked environmental think tank and examine to what extent one should be critical towards it. In addition, a critical discussion towards the theoretical framework will help enhance an unbiased analysis as far as possible (Punch 2005:145).

Hence, this thesis takes the form of a case study in order to gain an understanding of the characteristics of *usable knowledge* within EfD, this in turn

aims to contribute to further knowledge and learning about think tanks and its relevance for policy-making. To address the theoretical focus of the research question the conceptual framework will be outlined below to make it explicit what will be examined in order to understand the characteristics of *usable knowledge*.

2.1 Conceptual framework

The conceptual framework brings clarity and focus to the research and helps answering the research question in an organized manner (Punch 2005:53-54). It operationalizes Haas' theory within the field of science-policy nexus and produces a framework that explores the characteristics of *usable knowledge* within the empirical material. The conceptual framework offers a way to motivate and explain the empirical findings in terms of the overarching theory however, there are no perfect ways to operationalize theory and therefore it can be criticized. In this study, on the other hand, the conceptual framework is applied to enhance the validity and trustworthiness of the empirical conclusions by creating a clear connection between the empirical material and theory through the conceptual framework (Esaiasson et al. 2007:59-61).
Haas' theory analyses epistemic communities that have the same casual beliefs and seek to exert influence on policy-makers. The main focus of Haas' research concerns epistemic communities' influence on the international policy process and, more recent research connects it to the global environmental politics where the discussion of epistemic communities is current (Haas 1992; 2004; Knaggård 2009:92). In this study, Haas's concept of *usable knowledge* will be examined within EfD. The concept of *usable knowledge* offers a conceptual framework that contains requirements for epistemic communities to be able to "speak truth to power" or to influence decision-making (Haas 2004). To examine *usable knowledge* within an epistemic community Haas outlines three criteria, namely: *credibility, legitimacy* and *saliency,* however only *credibility* and *legitimacy* will be applied in this study. The concepts of *credibility* and *legitimacy* have also been compressed and therefore only target the key features within the concepts. The reason for this is to present a specified application of *usable knowledge* that is coherent with the word amount and time for this thesis but simultaneously present a representative definition of the theoretical definition of *usable knowledge* (Esaiasson et al. 2007:59-61,64-65). Next, the conceptual framework that is applied in this thesis is explained in detail.

2.1.1 Legitimacy

- How is the procedural process organized?
    - To what extent is EfD independent in terms of funding and connection to governments?

- Do other actors influence EfD and what implication could this have for legitimacy?
- Who works at the think tank, is there an equal representation between south and north?

2.1.2 Credibility

- What cause-and-effect understanding does the EfD stress in the seven chosen peer reviewed articles?
  - What causes for climate change is stressed within the texts?
  - What effects do the texts highlight?
  - What solutions are dealt with in the texts?
- To what extent have the topics of the peer reviewed articles been consistent between 2008 and 2014?

Hence, the conceptual framework outlined above will guide the analysis of the empirical material further. The thesis then elaborates on how the conceptual framework will be implemented.

2.2 Empirical material

In consideration of the research question, the study is based on secondary sources that enable several materials to target the question at hand. This thesis aims to describe the characteristics of *usable knowledge* and therefore the empirical material is selected in order to answer this question. To investigate the characteristic of *usable knowledge,* the *credibility* and *legitimacy* of EfD will be critically examined following a conceptual framework that is outlined above. The research question guides the sampling process as well as the limited amount of time and word limit of the thesis (Bryman 2012:418). The research has a specific focus and purpose in mind and therefore the sampling is structured in a deliberative way (Punch 2005:103,187; Bryman 2012:417). Moreover, the scope of empirical material is selected to prevent biases and to increase objectivity as much as possible (Esaiasson et al. 2007:325). It is also important to note that the sampling and analysis of the empirical material is influenced by my interpretation and understandings and therefore I acknowledge that my study might be biased (Bryman 2012:39-40). This is because from my ontological standpoint research cannot be value free.

The main sources of data are official documents published by EfD that are available for the public on EfD's website. Information about the procedural characteristics on EfD is also illustrated on the website. These two sources of empirical material will help determine the characteristics of *usable knowledge. O*ften within case studies the documentary data is combined with interviews or

observations, however in order to answer the research question no interviews or observation are required (Punch 2005:184). Next, the text provides a more explicit definition of the method and critique on the empirical material that will be dealt with in this thesis.

2.2.1 EfD

The main purpose in examining the procedural process of EfD is to explore and describe the characteristic of *legitimacy* within the EfD in terms of the conceptual framework that guides the empirical investigation in this thesis. Therefore the conceptual framework helps delimit the study of *legitimacy* where only the questions outlined earlier will be the focus. To address the questions concerning *legitimacy* purposive sampling is conducted to deliberately select the material needed to answer the question. The purposive sampling is in accordance with the research question, the time limit and scope of the thesis into consideration (Bryman 2012:82-83). The data collected draws mainly from annual reports where EfD discusses its overall objective and how this is achieved and organized. Further relevant webpages will also be scrutinised where the board and alike is presented. It is important however to be critical towards the sources of the data that the think tank generates due to often private actors has a specific objective that they want to get across that can question their representativeness and validity (Bryman 2012:551). Websites in particular have been criticized for being in continual flux, consequently making it difficult to make the research replicable. Therefore, when investigating the procedural structure of EfD it is important to keep in mind the issues of authenticity, credibility and their websites' constant change (Bryman 2012:47,655).

2.2.2 Official documents

To address the question of the characteristic of *credibility* within the conceptual framework, official documents that are available for the public domain are used to examine the amount of scientific consensus that the think tank might have. Similarly the process of purposive sampling been carried out in order to get the most representative sample as possible. The question of *credibility* aims at investigating the cause-and-effect understanding and if it has been consistent since EfD was initiated. This requires a sample over time and thus a longitudinal research is conducted on the published documents to explore changes over time (Bryman 2012:71). Therefore the time-frame ranges from 2008 to 2014, 2008 is the first available document and 2014 the last. The published documents have been deliberately limited to only include documents that are peer-reviewed articles under the subject: climate change. Thus, seven articles have been chosen, one from each year and the selection of those seven aimed at as much variation as possible among authors. The reason for this is that the empirical analysis aims at presenting a representative sample of EfD that reflect the perspectives of the

whole organization as far as possible. Moreover, it also prevents the potential biases that a limited amount of scholars could have created (Bryman 2012:39-40).

The concern of source criticism is also important to emphasize in order to increase the quality and objectivity of the study. Official documents themselves that are not available for the public domain can be questioned, as can those that are accessible. For what purpose are the documents written and who are they directed to can risk making the thesis biased (Esaiasson et al. 2007:318-320). However, the certain perspectives that represent EfD's position within the organization are not necessarily seen as an obstacle in the empirical analysis (Bryman 2012:551). Nevertheless, I do recognize that authenticity, credibility and representativeness of the official documents need to be considered. Therefore the thesis analyses peer-reviewed articles that EfD has published instead of "discussion papers" or "policy briefs". Peer-reviewed articles have been reviewed by other scholars in the field that is not connected to the think tank and therefore increased the quality and trustworthiness of the content of the documents (Bryman 2012:555).[2]

2.3 Thematic analysis

Both sources of data will be analysed through thematic analysis where *theory-related material* is significant. The conceptual framework will guide the themes that I apply on the empirical material (Bryman 2012:578-580). I found this analysis appropriate for my thesis because it enabled me to search for themes in the material in correlation to the conceptual framework. By applying thematic analysis, both the scientific consensus within documents and structure of the think tank can be analysed in a systematic way guided by the conceptual framework (Bryman 2012:580-581). To explore the entities of *legitimacy* within EfD, sub-questions provide themes that guide the analysis. In line with the characteristic of l*egitimacy,* the thematic analysis on *credibility* will also utilize sub-questions guided by the conceptual framework. However, to examine scientific consensus within the texts, a more thorough analysis is needed. Cause, effect and solution serve as guiding themes or questions in order to find similarities or differences within the texts. A thorough reading and re-reading of the peer-reviewed articles will be conducted to display the themes (Bryman 2012:579). The abstracted themes within each guiding theme aim to illuminate the cause-and-effect understandings within each text and explore if these have been consistent by a longitudinal study ranging from 2008 to 2014.[3]

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2 The exact references on the empirical material is referred to Appendix 1

3 For more information on the abstracted themes see Appendix 2

2.4 Delimitations

This study aims to describe the characteristics of *usable knowledge* within EfD and this is carried out by employing a conceptual framework that helps to limit and apply the concept of *usable knowledge*. Therefore the conceptual framework is an important part of the delimitations of this research. The framework could have included a wider perspective of *usable knowledge,* however, because of the amount of time and words provided, this thesis will only target the characteristics outlined by the conceptual framework.

3 Theoretical framework

The theoretical framework plays an important role to guide and influence the collection and analysis of data that is required in order to answer the research question. The conceptual framework illustrated earlier helps operationalize the theoretical framework and apply it to researchable entities. The theoretical framework posed by Haas provides a context in which the empirical material can be understood and interpreted (Bryman 2012:21,24). This research seeks to explore the relationship between Haas' theory on *usable knowledge* and the empirical material. With this in mind, data is collected and analysed with the theory in consideration and therefore this thesis aims to apply the concept of *usable knowledge* with focus on the chosen empirical material. Within this study the theoretical framework operate in a limited domain to investigate and understand a limited aspect of *usable knowledge*. Further, Siebenhüner (2002; 2003) will be used to compliment and explain Haas theory. Similarly with Haas, Siebenhüner discusses *credibility*, *legitimacy* and *saliency* and therefore applying theoretical arguments from Siebenhüner could strengthen my conceptual framework and might also verify the conclusions of this paper (Bryman 2012:24-25).

There are however, other theories within the science-policy nexus that could have been applied. Science and Technology Studies within the science-policy nexus is a contrary perspective and is more constructivistic. This school of thought argues that science is socially constructed and depending on the cultural context of the policy-makers scientific actors may or may not be influential (Jasanoff 2012; Knaggård 2009:61-61,70). Nevertheless, this thesis will apply the theoretical framework by Haas because this paper does not aim to elaborate on the social context from which EfD's science is constructed. This perspective will on the other hand serve as a critical viewpoint on *usable knowledge* in the discussion chapter.

This chapter explains the concept of *usable knowledge* in relation to Haas and explicitly examines the characteristics that constitute the conceptual framework. However, before explaining the characteristics of *usable knowledge* the term epistemic communities will be explored. This will enable a deeper understanding of the context from which *usable knowledge* originate. Thus, the findings of the thesis are intended to contribute and feed back into Haas's theory.

3.1 Epistemic communities

Haas's (1989; 1992) theory discusses when policy-makers turn to epistemic communities for advice related to conditions of uncertainty and what factors shape their behaviour. Furthermore, it analyses the impact of epistemic communities on decision-making within different issue areas such as international political economy and the environment. This approach is referred to as epistemic community approach and it analyses and explains the processes when epistemic communities generate policy coordination. Moreover, it also discusses the reasons why decision-makers increasingly turn to expert communities for advice and these motives are important in order to understand the complexity of policy coordination (Haas 1989; Adler & Haas 1992). This study will not utilize the epistemic community approach because the focus of research questions is not relevant to this thesis. Additionally, it implies an extensive analysis on what mechanisms that gain and retain influence in the policy making process (Haas 1992; Adler & Haas 1992).

Epistemic communities consist of "a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area" (Haas 1992:3). This is also the definition of a think tank in this study to enable *usable knowledge* to be operationalized on EfD. Furthermore, epistemic communities aim to institutionalise their views into international politics to guide the international behaviour. Hence, according to Haas, epistemic communities aim to influence the policy process in accordance to their beliefs and shared understandings (Adler & Haas 1992).

The reason for why the concept epistemic community has been explained is because it puts *usable knowledge* in its broader context and provides a description of the concept that will facilitate the overall understanding of *usable knowledge* in connection to an environmental think tank. Most importantly, however, Haas (2004) argues that in most cases it is only epistemic communities that possess characteristics of *usable knowledge.* Therefore the term epistemic community will be applied in this thesis but with no further significance than another name for a think tank of scientific actor. Next the concept of *usable knowledge* will be explained.

3.2 Usable knowledge

This paper will describe the characteristics of *usable knowledge* within an environmental think tank and the reason for this is because according to Haas (2004), *usable knowledge* is when knowledge is able to speak to power. In other words, when scientific knowledge is able to influence decision-makers. Speaking truth to power has been a key theme within the science-policy nexus for decades and according to Haas, expert knowledge can generate scientific truth by obtaining *usable knowledge.* Therefore if epistemic communities have the characteristics of *usable knowledge* they are most likely to influence decision makers. This paper explores the characteristics of *usable knowledge* in EfD as this

may demonstrate the potential influence the think tank can have on politics and policy-making.

According to Haas (2004) science has become politicized and therefore scientific knowledge can no longer be viewed as objective or as true because science might be biased but instead of implying that science generates truth per say. Haas discusses better or worse science that might create conditions when science is less subjective and when power listen to science. Thus, when epistemic communities possesses the characteristics of *usable knowledge.* In addition, *usable knowledge* is considered to be accurate information that policy-makers can turn to in terms of uncertainty. Further, it entails a procedural structure that helps transmitting scientific knowledge from epistemic communities to decision-makers. Thus, the characteristics of *usable knowledge* enable epistemic communities to influence and create new patterns of behaviour within the international policy arena (Haas 2004; 1992).

In order to capture the relevant characteristics of *usable knowledge* that can help determine the potential impact EfD could have on policy-making, the following characteristics of us*able knowledge* will be applied; *credibility* and *legitimacy*. These concepts will describe the characteristics of *usable knowledge* that the think tank possess and might give an insight on how effective the think tank can be in the process of influencing decision-makers (Siebenhüner 2002; 2003; Haas 2004). Originally there are three criteria and the one that is missing is *saliency,* the implication of the concept will be elaborated further down in the text. However, the concepts of *legitimacy* and *credibility* explore certain design elements of scientific actors to illuminate the effectiveness of the procedural process and scientific consensus. Hence, the knowledge must posses three characteristics of *usable knowledge*; *legitimacy, credibility* and *saliency,* which will now be addressed in order to understand the procedure that will be conducted in the empirical analysis.

3.2.1 Legitimacy

L*egitimacy* is an important component for scientific actors because if an epistemic community is perceived as legitimate then its chances for influencing policy-making are enhanced. Further, it implies that the statements within the think tank are believed to be legitimate, thus, scientific knowledge is developed through a process that reduces potential bias and political influence. To address legitimacy within a knowledge group Haas (2004) and Siebenhüner (2003) state that the procedural process and how it is organized is vital to understand, in order to detect if scientific information is constructed in a transparent manner. This implies that the actor is independent in terms of funding and in terms of government interference. Moreover, the representation of those who are dependent upon the information is also a crucial element and similarly, a process free from political interference. Thus, the more autonomous and independent scientific knowledge is from political interests, the greater influence it might have on the policy processes (Haas 2004; Siebenhüner 2002; 2003).

The purpose of including the characteristics of *legitimacy* within the conceptual framework is to analyse and describe EfD's procedural process. The findings might provide insight into the characteristics of *usable knowledge* and thus hamper or foster the potential to influence the policy arena. However, the investigation of *legitimacy* will be limited in comparison to the original definition of Haas (2004). This study will not examine to what extent the think tank is free from political interference because this would require a definition of what political interference is. However, it will take it into consideration if there are any obvious traces of political interference, one example could be if they are connected to a specific actor.

3.2.2 Credibility

If an epistemic community obtains *credibility* then their knowledge is believed to be true in the eyes of the recipients. For science to be credible it must contain casual beliefs that are promoted within the epistemic community (Siebenhüner 2003; Haas 2004). According to Haas & Adler (1992) scientific knowledge is credible when it has scientific consensus, which is when the scientific community has the same cause-and-effect understanding on a specific problem. Scientific communities that reflect consensual science are likely to be superior in their ability to shape the political agenda. This is because the community itself believes in the nature and scope of a certain issue and this makes the scientific statements trustworthy for the consumers (Haas 1992; 2004).

According to Haas (1992) identifying the beliefs of a community is not always simple, it requires detailed study of materials such as; "the early publications of community members, testimonies before legislative bodies, speeches, biographical accounts, and interviews" (Haas 1992:35). However, because of the time limit and scope of the thesis this study will implement a simplified procedure of mapping scientific consensus. To address the characteristic of *credibility* this study will analyse seven peer-reviewed articles published by EfD, in which the first sample is from when EfD was initiated and this might help trace "the intellectual history of the disciplines from which the epistemic community drives its understanding of the world" (Haas 1992:35). Therefore it is important to keep in mind that the scientific consensus that might be abstracted from the published documents are not of the exact same nature as Haas original definition.

In addition, to map out the cause-and-effect understanding within EfD and examine if the think tank has a consistent worldview, a conceptual framework has been created for the possibility to operationalize the characteristic of credibility in accordance with Haas (2004).[4]

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4 The conceptual framework is referred to in the Methodology chapter.

3.2.3 Saliency

The two characteristics; *credibility* and *legitimacy* help determine the effectiveness that the think tank might have in the political process and thus, its potential impact. However to determine *usable knowledge* Haas (2004) refers to three characteristics namely; *credibility, legitimacy* and *saliency. Saliency* means that the information within the think tank is provided in a timely manner and, is in conjuncture with the policy process which should also be relevant and useful for the decision-makers. However, according to Haas (2004) *saliency* is not as relevant as the characteristics of *credibility* and *legitimacy.* It is argued that *saliency* focuses too much on short-term knowledge and instead it is more essential for an epistemic community to possess the characteristic of *credibility.* It focuses on long-term aspects on expert knowledge and is therefore considered to be more relevant and, due to this, has a greater authenticity that enhances scientific influence. With this in mind, this study will not include *saliency* within the conceptual framework, because this study does not aim at exploring how and if the scientific knowledge within the think tank is consistent with the current climate politics discourse. The aim is also not to investigate if the scientific product is relevant and timely for the current climate change discussion. Put in another way, *usable knowledge* must be both accurate and acceptable, but I will only investigate the accurate perspective of the think tank. To examine if the scientific knowledge that the think tank produces is acceptable or not in the eyes of the public, then the perception of the scientific information would be studied. This would require interviews or questionaires about how people perceive this specific think tank, but this will not be conducted in this research (Bryman 2012:469,500).

4 Results

In this chapter I will analyse the results based on the conceptual framework that offered a way to motivate and explain the empirical findings in terms of the overarching theory. The analysis seeks to describe the characteristics of *usable knowledge* within EfD and explore the implications that this might have for EfD as a one of the world's best environmental think tank. The analysis will illuminate the empirical findings and apply the theory to interpret the result.

4.1 Legitimacy

Legitimacy is one characteristic that is required in order to operationalize the conceptual framework of *usable knowledge.* In this section the empirical findings will be presented and analysed in connection to the applied theory. The analysis seeks to answer each question within the conceptual framework on *legitimacy* and therefore no other aspects of EfD will be evaluated here. The overall objective is to investigate *legitimacy* and understand how the procedure is organized, however, this question has been divided into smaller sub-questions that delimit the overall question and facilitate the empirical analysis. Moreover, the first sub-question that will be analysed is "to what extent is EfD independent in terms of funding and connection to governance?".

EfD is an environmental think tank that was launched in 2007 in cooperation with the Swedish International Development Cooperation Agency (SIDA) and seven years later Sida is still the main financial funder, in addition EfD builds on Sida's Environmental Economics Capacity Building Program (EfD). However, the think tank aims at diversifying its funding and within the coming five year period it aims to undertake a transition from a "capacity building project, primarily funded by Sida, to an independent consortium of environmental economic think tanks" (EfD Annual Meeting 10/2012 b:8). In order to reach their five-year goal of becoming an independent consortium EfD currently collaborates with six other EfD centres around the world; Central America, China, Ethiopia, Kenya, South Africa and Tanzania, but does still have its main core at the University of Gothenburg in Sweden, as well as relying on Sida for funding (EfD Annual Report 2012/2013).

According to Haas (2004) the connection that EfD has to Sida (thus also the Swedish Government) because Sida provides the majority of EfD's financial resources, could render their legitimacy questionable. Siebenhüner (2003) argues that the risk of governmental interference is that they tend to pursue certain interests and this could be mirrored in the scientific organization. In the case of

Sida, EfD has to follow their Environmental Economics Capacity Building Program in order to get funding, and both Haas (2004) and Siebenhüner (2002; 2003) argue that this phenomenon has big chances of hampering the characteristics of *legitimacy* and consequently EfD's impact on policy. EfD are currently under transition towards diversifying their funding and moving away from Sida's capacity building program and this might increase their *legitimacy* characteristics in the future if they *are* able to diversify. Nevertheless, Haas (2004) stresses the fact that epistemic communities should avoid relying on finance from one national institution and especially institutions that are connected to the national government. Once again the *legitimacy* characteristics of EfD are criticized and Haas (2004) argues that this could be the reason to believe that funding and research choices are shaped by political factors. However, the interplay between epistemic communities and governments is an equally important factor for *legitimacy*. For think tanks to diffuse their policy recommendations and put pressure on governments to act upon environmental issues, scientific communities must create partnership with governments (Haas 1989; Adler & Peter 1992; Siebenhüner 2003). This is also an objective that EfD strives to achieve, because their vision is to contribute to poverty alleviation and sustainable development through policy interaction (EfD Annual Meeting 10/2012 b) and this is most efficiently reached by targeting influential policy-makers such as governments. This characteristic can enhance the *legitimacy* within EfD (Siebenhüner 2002; Haas 1989).

With the second sub-question in mind, EfD cooperates with six environmental economic partners from around the world with the purpose of addressing research, policy and institutional gaps in development countries, and to achieve this goal EfD aims at becoming a consortium of environmental economic think tanks. This enables EfD to reach the policy consumers and target those who are in need of environmental protection. In addition, the third question targets the representation of north and south participation, and this is an important factor for a think tank to be able to influence policy. If the representation of scientific actors is unequal it can make the whole think tank biased (Haas 2004). This seams to be the opposite of EfD's strategy in which includes representatives from each collaborative centre in the Foundation Management Board, which is the highest level governance body within the think tank (EfD Annual Meeting 10/2012 a). Thus, all six centres decide where the recourses should go, what projects that should be targeted and so on and so forth. However, the think tank has its foundation in Sweden and its main funder is also from Sweden and this further limits characteristics of *legitimacy* because to some extent EfD has a organization where the "south" members are only permitted a limited amount of participation (Haas 2004; 1992; EfD Annual Report 2012/2013). Drawing from Haas and Siebenhüner the characteristics of *legitimacy* detected in EfD is limited and therefore one might assume that EfD is not entirely capable of producing the characteristics of *legitimacy*. One might assume that because EfD is one of the top 70 think tanks in the world that they would be better on generating *legitimacy* characteristics but as illustrated above this is not as straight forward.

Further, the characteristics of *credibility* will be examined to get a full picture of *usable knowledge*.

4.2 Credibility

To address the *credibility* characteristics I have conducted a thematic analysis where I, with help of the conceptual framework, have created three themes that have guided the analysis of the peer-reviewed articles. The three guiding themes that explored the theory within the empirical material were: causes, effects and solutions. The themes aid in reaching the aim of the analysis, namely to explore the core characteristic of *credibility* within EfD, which is scientific consensus. Thus, by utilizing these three themes it might provide evidence if authors within EfDs have the same cause-and-effect understanding and if this has been consistent since EfD was initiated which might illustrate if EfD processes the characteristics of *credibility*.

4.2.1 Cause

These themes were the most common causes emphasized in the articles:

> **Information**, **weather disasters and financial constrains**
> Rent seeking, uncertainty of climate change and global house emissions

The three in bold type were all transparent through all of the seven articles while the other three where missing in some. The theme "cause" aimed to answer the question "what causes for climate change are stressed within the texts?" with the purpose to illuminate if any of the seven articles highlighted different or similar causes. However, defining causes for climate change within the text was more difficult than expected because depending on what subject of climate change the author studied there would be different levels of causes. So instead the question became "why is there a problem?" to find the reasons behind certain climate change problems. An example is that rent-seeking is maybe not seen as a core cause for climate change but was interpreted as an underlying cause for increased or continued climate change. The causes differed slightly within the articles; depending on which subject on climate change was emphasized. However they were still compatible.

4.2.2 Effect

The most common effects emphasized within the articles were:

Reduced productivity, vulnerability, enhanced climate change and increased economic costs. Inequality, poverty and conflict

There was an attempt to answer the question "what effects do the text highlight?", and the over arching themes of effects in the published documents can be interpreted as negative. The only possible positive effects are when the author proposes its solution to the problem and argues that if countries would follow these solutions then there might be positive effects. Therefore one overarching theme concerning effects could be argued to be that they all stress negative effects and this could be interpreted as a message that EfD strives to get across for being influential in the international climate change discussion (Adler & Haas 1992).

4.2.3 Solution

The following themes were the most common solutions highlighted within the articles:

Information, effective environmental management, adaptation, collaboration pollution costs, policy regulations

The question of "what solutions are dealt with in the texts?" where analysed and it could be argued that the solutions mentioned in the seven articles are even more similar to one another than the cause and effect themes. Broadly speaking, it was harder to abstract overall themes on the cause and effect topics because the authors wrote about various topics on climate change. However, the solutions stressed within the articles tend to be more coherent and consistent among each other. Thus, it did not matter what topic within climate change the authors wrote about, they still had the same solutions for climate change issues.

In accordance with Haas (1992) this could be interpreted as EfD has a shared knowledge base with similar normative beliefs. During the thematic analysis I had a hard time finding explicit outliers that could have highlighted different causes, effects and solutions for climate change issues. There where however, as illustrated above, common themes between the articles. In line with Haas' (2004) theory, this might imply that the authors share the same normative belief as the environmental think tank. Furthermore the mutual scientific understanding within the think tank on the climate change issue enhances the characteristics of *credibility* (Haas 2004; 1992). Drawing from Haas (1992), one might assume that EfD obtain the same set of case-and-effect understandings amongst its scholars and publications. Thus, it possesses one key characteristics of *usable knowledge*. Moreover, to detect scientific consensus the consistency must be further analysed and this will be addressed below.

4.2.4 Consistency

- To what extent have the topics of the peer reviewed articles been consistent between 2008 and 2014?

Moreover, the consistency of the articles will be analysed to get an understanding of the overall subjects that these articles have researched. By looking at the overall topics of the articles it leads to four themes; international pollution management, regional adaptation, climate policies and climate impact. The first article available at EfD's website within the category of peer-reviewed article and climate change were published in 2008 and this article target the local impacts of climate change in Namibia and is not as focused on the other topics. Similarly with the article from 2012, its topic focuses on climate policies more than the others. However the rest of the articles discuss international pollution management or regional adaption and both the article from 2008 and 2012 can be placed in one of the two. The 2008 article seems to target more local impacts of the climate change and its solution tends to discuss adaptation more than international pollution management. Likewise, the 2012 article analyses climate policies on a global level and implicitly enters the stage of pollution management. Thus, one could assume that there are some irregulars among the overall topics but indirectly they tend to be interconnected.

Interestingly, the following articles can be grouped into international pollution management; Hasson 2010, Damon & Sterner 2012, Xu et al. 2013 and Burtraw & Sekar 2014, and regional adaptation; Reid et al. 2008, Deressa et al. 2009, Di Falco et al. 2011[5]. This could be interpreted as the EfD's peer-reviewed articles on climate change have changed focus over time, which would imply that the consistency might be questionable. However this conclusion can be criticised because the article from 2010 is older than that of 2011 and to be certain these two would have to change place. On the other hand, this could illustrate a transition from regional adaptation to pollution management, and imply that the change of focus on climate change issues took time. Hence, it could be interpreted that in the year 2010 and 2011 EfD's peer-reviewed articles on climate change experienced a transition from targeting mainly regional adaptation climate issues to a focus on pollution management with a more global aspect.

However, the three guiding themes; cause, effect and solution indicate otherwise. These themes demonstrate that there might be a coherent cause-and-effect understanding within the seven texts' content, and this implies that these articles follow an environmental economics perspective on climate change issues. In sum it is hard to draw any conclusions about if EfD has changed focus on climate change issues, since it was initiated in 2007. The reason for being critical is that the purposive sample that aims to represent the characteristics of *credibility*

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5 See Appendix 1 for full references

within EfD is quite small. To draw such conclusions would require a comprehensive longitudinal case study, which would include the majority of EfD's published documents. However because of the time and word limitation this was not possible (Bryman 2012:71-71,425-426).

Nevertheless, Haas (1992) states that for an epistemic community to enquire scientific consensus there must be a coherent "episteme" in other words, a mutual worldview or ideas about climate change. The findings on the other hand, illuminate a potential shift in the perspective of climate change during 2010 and 2011, and this might be reason to question the characteristic of *credibility*. However, all articles utilized an environmental economic perspective on climate change and therefore one could claim that this indicates that the episteme has been consistent since 2008. Furthermore, the articles appear to have a common set of cause-and-effect understandings and this combined with a common understanding of the world could entail that EfD has a consensual knowledge base and therefore possesses the characteristics that *credibility* implies (Haas 1992; 2004).

In this chapter the characteristics of *usable knowledge* within EfD has been explicitly outlined and discussed. However, based on the empirical analysis and the conceptual framework that helped limit and operationalize the characteristics of *usable knowledge* that where scrutinized in this thesis, one might argue that the characteristics of EfD's *usable knowledge* is limited. The empirical findings indicate that EfD is missing some important factors of *usable knowledge* because they have a limited amount of *legitimacy* and *credibility* and according to the theoretical focus that this study has applied, this could be interpreted as EfD's potential influence on policy-makers being limited. [6]

[6] See appedix 2 for further information about the themes.

5 Chritical discussion

Now Haas theory has been applied to the empirical material and the conclusion drawn indicates that the EfD's *usable knowledge* seems to be limited. To critically analyse the result this section aims at discussing the theoretical framework applied in this thesis and questions if the concept of *usable knowledge* provides the characteristics necessary to influence the policy process.

To critically discuss Haas' theoretical framework, a contradictory research field within the science-policy nexus will be applied to provide a broader picture of EfD's potential role within the international policy arena. Science and Technology Studies (STS) within the field of science-policy literature argues (in contrast to Haas) that there is no clear distinction between science and politics. According to this perception, science is not produced in "a vacuum" rather it is a part of society and constructed within a cultural context based on certain values and norms. Therefore, in this field of research science is seen as a construction, where scientific experts and policy-makers choose to include or exclude certain features of knowledge. Therefore what is perceived as science is constructed by both scientific and political factors consequently, there is no clear division between science and politics (Knaggård 2009:45,61; Jasanoff 2014; Grundmann 2007).

On the other hand, Haas (1992; 2004) theoretical perception argues that science can be separated from politics if the scientific actor possesses a set of practical characteristics. If the knowledge community accomplish certain key characteristics such as, *legitimacy* and *credibility*, they might be able to produce objective science, free from political influence. Thus, instead of scholars and policy-makers constructing the perception of science, this perspective talks about better or worse science that can produce scientific truths' (Adler & Haas 1992; Haas 1989; 1992; 2004).

However, the constructivist perspective questions the perception of *usable knowledge* as an instrument that produces independent knowledge. Instead this field of research argues that the relation between science and politics is captured in the context of framing. In comparison to influencing policy-makers through characteristics such as, *usable knowledge,* this perspective argues that framing is the key to affecting decision-makers. Scientific actors provide a context where scientific knowledge can be translated into relevant science for policy-makers. Thus, knowledge is framed in a political context that is timely and meaningful for the decision-makers (Knaggård 2005). This questions the effects that Haas claimed that the characteristics of *usable knowledge* produced for epistemic communities and EfD. According to Knaggård (2009:79,81), scientific influence in not determined by better or worse science but more frankly, by framing. Because framing deliberately illuminates specific aspects of a problem and

excludes others to reach particular goals and interests, this determines if the knowledge community is able to be influential or not (Jasanoff 2014). Therefore, the constructivist perspective argues that obtaining practical characteristics of *usable knowledge* might not explicitly lead to policy interaction. The social context within which both science and policy-makers exist needs to be taken into consideration, as well as how a knowledge community frame its science (Knaggård 2009:83; Knaggård 2005; Grundmann 2007; Humle & Mahony 2010; Jasanoff 2014).

Nevertheless, there are other scholars which also stress the importance of a set of practical characteristics for science to improve and be able to influence the policy process. Biermann (2002) talks about structural variables that may determine the amount of influence scientific networks have in the north and the south. More explicitly Biermann discusses three variables; "expert *participation,* research *potential,* and issue *prominence"* (Biermann 2002:197) and these three determine the effectiveness of knowledge communities. Furthermore, they are also compatible with the design features of *usable knowledge* (Haas 2004; Biermann 2002).

According to Biermann (2013) scientific networks help strengthen the scientific input within the climate negotiations as well as increasing the quality and efficiency of the policy processes. This is possible if the scientific group is independent and obtains diverse expert knowledge and experience. Then, the group possesses the ability to advice and provide policy recommendations for decision-makers. Thus, in this view the boundary between politics and science is a vital component to ensure expert knowledge in the policy process (Biermann 2013). In line with Haas (1992; 2004), Siebenhüner (2002; 2003) has three criteria that scientific actors should fulfil to influence the policy world. The scholar undertakes the same characteristics as Haas (2004), which are credibility, legitimacy and, saliency and emphasizes the same design elements and therefore one could argue that Siebenhüner (2002; 2003) supports the concept of *usable knowledge.* Biermann (2002) on the other hand, tends to stress the scientific characteristics a bit differently, but does still emphasize the crucial entity of participation. For expert actors to influence the international policy arena they most be perceived as legitimate, credible and, useful. This is accomplished by providing an equal representation of north and south participants as well as including southern concerns and viewpoints. Furthermore, the research capacity needs to be improved for the exchange to take place in a transparent manner (Biermann 2001). Hence, in contrast to the constructivist approach to the science-policy nexus, it could be considered that both Siebenhüner (2002; 2003) and Biermann (2001; 2002; 2013) are in line with the concept of *usable knowledge.* This is partly because they have similar perspective on the science-polity nexus and partly because they have comparable characteristics that they all stressed is necessary to improve or fulfil for science to influence policy.

In sum, based on the constructivist perspective there might be reason to be critical of *usable knowledge*. This point of view argues that the amount of influence is determined on the framing strategy that EfD pursues to disseminate its knowledge. Furthermore, frames serve as vehicles for how science is perceived

and accepted by policy-makers; thus, depending on the frames the knowledge community might influence policy (Vogel & Frost 2009; Lagendijk &Needham 2012). Nevertheless, the authors that are more on the rationalist side believe that the significant factors for influential science are practical procedures that can be improved or fulfilled. Since this study applies Haas' theory, which is more on the rational side of the science-policy nexus, the constructivist arguments are not significant for the conclusions drawn on the characteristics of *usable knowledge* within EfD. However, it does emphasize that there is reason to be critical towards the *usable knowledge* framework. It might not be enough that scientific networks obtain the characteristics of *usable knowledge* to influence the policy process, it could be necessary to complement these with other perspectives within the science-policy nexus such as, Science and Technology Studies.

Taking this into consideration, it could be argued that there are reasons to criticize EfD even tough it is a prominent environmental think tank. Given that EfD possesses a limited amount of *usable knowledge* it is not entirely able to fulfil the requirements of *legitimacy* and *credibility*. Limited *legitimacy* could entail EfD being influenced by other actors and being not an independent environmental think tank. This, in turn, could imply that their research is biased. Restricted *credibility* makes the consumer of the knowledge question its trustworthiness, because if the scholars within EfD do not believe in its own science then the recipients won't either. The purpose of this study is not to generalize, but given that EfD is a top environmental think tank and has a limited amount of *usable knowledge* there might be reason for further studies to investigate the actual impact that environmental think tanks have on the climate negotiations. The reason for this is that if other environmental think tanks produce biased expert knowledge for decision-makers within the global climate regime, they risk making choices based on lacking information, which could “jeopardize future choices and threaten future generations” (Haas 1992:13).

6 Conclusion

More environmental actors are participating in the global climate negotiations with the purpose of targeting the issue of climate change. This increased multilateralism is argued to stimulate global collective actions and partnerships for mitigation of climate change. One significant actor that has entered the international climate arena is epistemic communities that aim at providing expert knowledge and policy recommendations to decision-makers. The knowledge communities generate scientific knowledge that is argued to be objective, and to some extent true, and this enables science to give policy advice to the climate negotiations. Within the science-policy nexus there is a research gap concerning epistemic communities' impact on and participation in the global climate regime. Therefore this study aims at furthering the understanding of scientific actors, and more specifically an environmental think tank. Applying a theoretical framework within the science-policy nexus which argues that if a think tank possesses the characteristics of *usable knowledge*, might enhance its chances for influencing policy processes. The environmental think tank under scrutiny in this research is EfD and it is ranked as one of the top 70 think tanks in the world. The assumption that a highly ranked environmental think tank should produce the characteristics of *usable knowledge* to provide high quality expert knowledge was questioned within the thesis.

The result indicated that EfD's *usable knowledge* is limited and this can be interpreted as if the environmental think tank does not acquire the characteristics needed to produce legitimate and credible expert knowledge. This interpretation is based on the characteristics of *usable knowledge,* namely *legitimacy* and *credibility*. The characteristics of *legitimacy* were proven to be limited because EfD is dependent on Sida for its main funding as well as steering EfD's programs. According to Haas these findings give reason to question EfD's science partly because it is mainly dependent on one funder and partly because Sida is a governmental agency. Thus, the Swedish government might indirectly control EfD and this reduces the characteristics of *usable knowledge,* which also could indicate that the research made by EfD is biased and reflects the intention of the Sweden government.

Interestingly, the empirical results from the published documents indicated that the characteristics of *credibility* were not limited to the same extent as the characteristics of *legitimacy*. Drawing from Haas theory, EfD has a consensual knowledge base which implies that their expert knowledge entails the characteristics to be believed and trusted by policy-makers. Even tough there was a change of focus in the published documents on climate change which could have questioned the characteristic of *credibility,* the cause-and-effect understandings within the text were clear and coherent.

However, the constructivist perspective argues that one cannot draw this conclusion so lightly. This school of thought claims that EfD is socially constructed within a broader culture with specific norms and values. Therefore depending on how EfD frames its science, it might be influential due to it is perceived as and believed to be expert knowledge by the social context. Haas on the other hand, believes that the important factor for science to influence policy is not the social setting but rather the practical characteristics of *usable knowledge* that can be improved. Instead of science being accepted depending on the social context*, usable knowledge* undertakes the perception that science can be improved by obtaining certain characteristics and when these are fulfilled, science might be able to talk truth to power. According to the contrast opinion this will never be possible because science and politics cannot be separate in the way that Haas believes it can.

In conclusion, the characteristics of *usable knowledge* within EfD are limited. This is mainly based on the limited characteristics of *legitimacy* because the characteristics of *credibility* were more prominent in EfD. For EfD as a highly ranked environmental think tank, this could signify that there are reasons for being critical. Even though EfD is a top environmental think tank it has limited characteristics of *usable knowledge*. Given that this research aimed at describing the characteristics of *usable knowledge* within EfD further research on how and why the characteristics of *usable knowledge* are limited even though EfD is a highly ranked environmental think tank is necessary. This might give insight into how epistemic communities can improve their characteristics of *usable knowledge*. Moreover, the rescaling of scientific communities such as think tanks, on the global institutional arena as well as the results of this thesis, I suggest that future research needs to investigate in what way think tanks might impact the climate negotiations and the amount of influence they have on the policy process.

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Appendix 1

References for the empirical material:

Legitimacy:

Presented below are the empirical material used to investigate the characteristics of *legitimacy*:

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- EfD Annual Meeting 10/2012 a = Environment for Development Annual Meeting, "Institutional Arrangements for the Environment for Development Initiative", EfD Coordination Committee. [Electronic] Available: http://www.efdinitiative.org/sites/default/files/new_institutional_arrangements_for_efd.pdf Download date: 2014-05-20
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- EfD Annual Report 2012/2013 = Environment for Development Annual Report, "Report 2012/2013 The Environment for Development Initiative", Available: http://www.efdinitiative.org/publications/efd-joint-report-201213 Download date: 2014-05-17

Credibility:

The following peer-reviewed articles on climate change are analyzed to explore the characteristics of *credibility*:

Published 2008 = Reid, Hannah., Sahlén, Linda., Stage, Jesper & MacGregor, James 2008. "Climate change impacts on Namibia's natural resources and economy", *Climate Policy*, Vol. 8, No. 5, p. 452-466

Published 2009 = Deressa, Emesgen, T., Hassan, Rashid M., Ringler, Claudia., Alemu, Tekie & Yesuf, Mahmud 2009. "Determinants of farmers' choice of adaption methods to climate change in the Nile Basin of Ethiopia", *Global Environmental change,* Vol. 19, No. 2, p. 248-255

Published 2010 = Hasson, Reviva., Löfgren, Åsa & Visser, Martine 2010. "Climate change in apublic goods game: Investment decision in mitigation versus adaption", *Ecological Economics*, Vol. 70, No. 2, p. 331-338

Published 2011 = Di Falco, Salvatore., Veronesi, Marcella & Yesuf, Mahmud 2011. "Does Adaption to Climate Change Provide Food Security? A Micro-

Perspective From Ethiopia", *American Journal of Agricultural Economics,* Vol. 93, No. 3, p. 825-842

Published 2012 = Damon, Maria & Sterner, Thomas 2012. "Policy Instruments for Sustainable Development at Rio +20", *The Journal of Environment for Development*, Vol. 21, No. 2, p. 143-151

Published 2013 = Xu, Jianhua., Wang, Xuesong & Zhang, Shiqiu 2013. "Risk-based air pollutants management at regional levels", *Environmental Science & Policy*, Vol. 25, No. 17, p. 167-175

Published 2014 = Burtraw, Dallas & Sekar, Samantha 2014. "Two world views on carbon revenues", *Journal of Environmental Studies & Science*, Vol. 4, No. 1, p.110-120

Appendix 2

Guiding theme: Causes

	2008	2009	2010	2011	2012	2013	2014
Sub-themes	Pre-existing conditions are not preferable Weather disasters Environmental degradation Bad national economy Global warming Change in weather affect Losses within the economy Lack of information	Weather disasters Socioeconomic factors Different impacts of climate change Social barriers Lack of information Financial constrains No sufficient adaption policies	Self interest Vulnerability Public commons /collective action problem Uncertainty of climate change, Weather disasters Low level of mitigation Low trust in policy Lack of collaboration Free-ride	Weather disasters Availability and access to food Low diversity in economy, Lack of information, Credit access and extension services	Subsidise Lack of institutions Rent-seeking The climate negotiations are too slow Weather disasters Financial crisis	Air pollution Uncertainty of climate change Industry SO2 emissions Populous areas Environmental stress	Green house emissions Atmosphere as a global common Who pays? Lack of regulations No effective climate policies
Semi-common themes	Rent-seeking, Uncertainty of climate change, Global house emissions						
Most common themes	**Information, Weather disasters and Financial constrains**						

Guiding theme; Effects

	2008	2009	2010	2011	2012	2013	2014
Sub-themes	Reduced vegetation Reduced farmers income Negative effect on economic sectors Loss in crop production Reduced productivity of fisheries Reduce stability Displaced workers Inequality	Temperature increase Planting trees Negative effects of climate change Change in cultivation and life patterns	Further climate change Scarce recourses Vulnerability High economic cost	Low yield and food security Recued economic growth Reduced agricultural productivity Reduced crop productivity Vulnerability Food insecurity	Air pollution Conflicts between the pollution industry and long-term development Trap in chronic poverty Vulnerability No safety nets Hotspots with no green taxes	Health risks Respiratory diseases Premature death Atmospheric reduction Morality risk Economic cost Ecological effects Acid rain Reduction of fish population Reduction Crop yield	Shape social relationships in future Expensive Trade-offs; efficient or fairness Economic effects on the national level Inequality
Semi-common themes	Inequality, Poverty and Conflict						
Most common themes	**Reduced productivity, Enhanced climate change, Vulnerability, Increased economic costs**						

Guiding theme: Solutions

	2008	2009	2010	2011	2012	2013	2014
Sub-themes	Information Reduce green house gases Climate change on the political agenda Effect management Creative collaborative management Help landowners to cope Irrigation projects All policies and activities are climate proofed	Livestock ownership Information on better production Social capital Collaboration among farmers and networking Agro-ecology, Adaption Soil conservation New crops Policy intervention Education systems Employment Increase farm income	Adaption polies Joint implementation of mitigation and adaption Policy makers need to create trust Increased cooperation Communication Collective commitment	Adaption Information Credit access Extension services Effective policies Technique	Appropriate policy instruments Effective environmental management Regulatory reforms Revenue-raising Understanding of environmental policy Large-scale adaption and effectiveness of our environmental policies Cooperation Information	Reduction in air pollution Pollution controls Risked based air quality management Research to support environmental decision-making Better recourse management	Property rights within governments Long-run reduce cost for mitigation Increased carbon prise Carbon tax Efficient policy management
Semi-common themes	Pollution costs, Policy regulations						
Most common themes	**Information, Effective environmental management, Adaption, Collaboration**						