

# Culture & Climate Change

## Exploring Cultural Influences on Climate Change Education in the Netherlands and Germany



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Cover page: logos of organizations

## **Abstract**

This thesis report describes the research which I conducted within the Master of Science program 'Climate Sciences' at Wageningen University. During the research I investigated the influence of cultural values on the way climate change is framed within educational materials in the Netherlands and Germany.

Cultural values in this research were approached in two ways: at country- and organizational level. By analyzing materials, developed and used in two different countries, I tried to find out in how far the climate change presentations were found to be similar or different. I also tried to find out how cultural values play a role on the frames.

The research assumed that the developing organizations themselves play a role in the way they frame climate change. By distinguishing two types of organizations (environmental organizations and organizations with a an international focus) it was investigated in how far climate change frames differed due to the organizations' focus on either nature or international cooperation aspects. Additionally to the analysis of CC frames, interviews with material developers were held to better understand how specific organizations developed the materials and framed climate change.

For many climate change frames hypotheses on cultural differences were developed. These hypotheses were based on existing cross cultural research on cultural dimensions. For some frames, cultural values at national level were found to be an influencing factor on the frames. In Germany for instance climate change was found to be presented in a much more dramatic and severe way, compared to the Dutch materials. Also presenting climate change with an apocalyptic tone was found more often within German materials. For other frames rather the organisational type was found to play a role on how the frame was used. It was found for instances that environment organizations mention mistrust into institutions much more frequently when it comes to the question if they are able to solve CC. Many more interesting findings on frames and the cultural influences on them are presented in this report.

## **Keywords:**

*Culture, Climate Change, cultural & organisational values, framing, education*

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## Abbreviations

### Commonly used abbreviations within this report

Abbr.	Abbreviation
CC	Climate Change
CO <sup>2</sup>	Carbon dioxide
CCE	Climate Change Education
CIO	Check it Out Programme
EU	European Union
GER	Germany or synonym for German CCE material
GHGs	Greenhouse Gases
NGO	Non-governmental Organization
NL	The Netherlands or synonym for Dutch CCE material
SvD	<i>Scholen voor Duurzaamheid</i> (Schools for Sustainability)
UNESCO	United Nations Educational, Scientific and Cultural Organization
WVS	World Value Study

### Official abbreviations of material developers (and translations)

BMU	<i>Bundesministerium für Umwelt, Naturschutz &amp; Reaktorsicherheit</i> Federal Ministry for the Environment, Nature Conservation & Nuclear Safety
BpB	<i>Bundeszentrale für politische Bildung</i> Federal Agency for Civic Education
CMO	<i>Centrum voor Mondiaal Onderwijs</i> Centre for Global Education
UfU	<i>Unabhängiges Institut für Umweltfragen e. V.</i> Independent Institute for Environmental Questions
VzBv	<i>Verbraucherzentrale Bundesverband e. V.</i> German Consumer Association
WNF	<i>Wereld Natuurfonds (WWF Netherlands)</i>
WUR	Wageningen University and Research Centre
WWF	World Wildlife Foundation Germany

### Abbreviations of CCE materials

*In this report I frequently refer to the different CCE materials. I therefore use abbreviations which are mainly based on the material developer. For an overview of the used abbreviations see table 1.*

### Abbreviations of CC frame

*In this report I frequently refer to CC frames that have been investigated on. I therefore use abbreviations for these frames too. For an overview of frame abbreviations see table 2.*



## Tables

Table 1	Selected CCE materials, material developers and material abbreviations
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# **1 Introduction**

## **1.1 Background**

Climate Change (CC) surrounds us everywhere. Open a newspaper, listen to political debates or simply pay attention to advertisements from companies, promoting the climate-friendliness of their products. The climate is not just getting hotter; it's a hot issue. CC as a physical reality is already quite a complicated issue, becoming more complex with the variety of opinions, view points and approaches that are found within different sectors of society on the subject CC. Different values and world views can lead to disagreement on causes, solutions or even the very existence of CC. Values and world views are concepts belonging to the realm of culture. Culture, this research assumes, influences the way we think and communicate about CC.

This research investigates the connection between culture and CC. More specifically, it focuses on Climate Change Education (CCE) in the Netherlands and in Germany. By analyzing different CCE materials, the research investigates how CC is framed. Furthermore, this research investigates how cultural values influence CC frames. Cultural values are approached at national and organization level within this research. Understanding how CC is framed and in which way the frames are influenced by cultural values, is both interesting and useful.

We should be aware of how children and adolescents are taught about CC as this influences their CC attitudes and actions later in life. By using materials from two countries, we may better understand in which way cultural values influence the way we speak about CC. For this research, cultural values are approached at a national level. The comparative approach of using two countries aims to make expected cultural differences in CC frames more visible. In addition to this, the research also investigates how organizational values are at stake when developing CCE materials.

The research aims to improve intercultural communication on CC issues. CC agreements at international level are often hard to make due to different political interests. In addition, different values and communication preferences might lead to misunderstandings and unsatisfying agreements. A better understanding of the way in which cultural values influence the way we think and speak about CC, can lead to better international CC communication. Understanding how these cultural values affect our way of dealing with CC is also very interesting as it can help improve communication and education strategies on CC.

Cultural values are often a sign of what really matters to us, and connecting to them can make CC communication more efficient. Very often culture is accepted as something that influences our way of thinking and speaking, but little scientific research is done in this area. Especially the influence of cultural values on CC frames has not yet been researched extensively, a gap this thesis aims to fill up.

CCE within secondary schools is this research's focus. In total 16 CCE materials, developed in Germany and the Netherlands, were analyzed in order to find out how CC is framed and how cultural values affect these frames. The chosen materials can be seen as a representation of

CCE materials for secondary schools within both countries.

## 1.2 Problem description

*Why making the discipline of climate science even more complex by introducing cultural elements? One might ask.*

*Simply reduce or avoid greenhouse gases (GHGs) and we will master climate change!*  
Might be an answer, but...

...culture, this research assumes, is an important aspect to be considered since successful and sustainable CC solutions can only be partly realized by technical means. CC is a social problem and technology alone is not sufficient to solve it (Smith, 2009 p.89). Within this research! CC is approached from a socio-cultural perspective, which can also be described as a constructionist approach. The reduction of GHGs is important, but we also should try to understand what people think of CC, as these thoughts underpin their behaviour. CC behaviour is contextually embedded and never only based on individual motivations. One of these contextual forces is culture, a concept that influences what we consider important or valuable. Understanding how culture influences our way of dealing with CC is considered relevant, as culture also underpins human behaviour that education- and communication strategies on CC often aim to change.

CC can be approached in various ways. Aspects of it can be highlighted or ignored. Every time we communicate we tend to fall back on framing practices, which is unavoidable. Framing occurs every time we speak of something, and it is expected that also within the different CCE materials CC framing occurs. How these frame look like, and how the frames are influenced by cultural values the research tries to investigate.

The framing of CC can be observed within various societal domains, such as the media or within politics. Newspaper articles or policy documents can be thought of as sources from which CC frames can be analyzed. The choice was made however to analyze CC framings within the domain of education. According to the UNESCO (2012), "education is an essential element of the global response to climate change". This is also assumed in this study. The aim of this study is to improve the understanding of how CC is framed within the context of education. Educational materials on CC were chosen as sources for further analysis. Recognizing that cultural ideas underpin CC behaviour, it is important to gain insights into the cultural influences affecting CCE materials, which very often aim at behaviour change.

CCE varies from nationally organized programs to very locally used programs where the lecture material is often a part of a broader educational program on CC. In this research CCE lecture material used nationwide, is the focus of analysis. These written materials are the most accessible sources for research on CC frames, making a framing analysis feasible.

Some of the chosen materials are included in broader CCE programs or national CC campaigns. Others are developed as independent initiatives from organizations. CCE is expected to be anything but homogeneous due to its contextual embedding. The framing of CC within the materials therefore is expected to differ too. For this research CCE materials

developed externally from schools were analyzed. This difference might be due to cultural influences, such as cultural values and beliefs.

The influence of culture in this research is approached from two sides. Firstly, CC frames can be influenced by values, held by the developing organizations themselves. One could speak of organizational culture as being an influencing factor when it comes to CC frames. Organizations that develop CCE material will probably use their own specific approach to CC when developing educational materials. Secondly, it is to be expected that the CC frames are also influenced by cultural factors that exist beyond the scope of organizational culture. This latter kind of influence is the main focus within this research. By choosing CCE materials developed in two countries, this research tries to ascertain the role national culture plays in CC frames, which are expected to differ.

### **1.3 Research objective**

The research's main objective is to provide insights into how culture plays a role on the CC framing within CCE materials. These insights might also be useful in enriching our knowledge on the relationship between culture and CC in more general terms. By revealing how cultural values shape CCE, the research hopes to stimulate intercultural learning in terms of CC communication. Taking the role cultural elements play into consideration, might also be useful when implementing international educational programs on CC at national level.

### **1.4 Research questions**

The research consists of two main questions, which are presented below. A more detailed description of the main concepts in these research questions is given in the first section of chapter three.

- I. How is CC framed within German and Dutch CCE materials?*
- II. In which way do cultural values linked with countries and organizations, influence the CC frames found in the CCE materials?*

### **1.5 Structure of the thesis report**

After this introductory chapter, this report continues in the second chapter with methodological considerations. The theoretical and analytical framework that underpins this research is presented in the third chapter. In this third chapter the literature on CC framings in general, but also study dealing with cultural influences on CC, will be presented. In addition to this, the analytical framework and the hypotheses on CC frames will be presented. The presentation and analysis of the research results is the main part of the fourth chapter. In this empirical chapter the analyzed frames are presented within five clusters. Two additional sections are added in this chapter, one giving an overview of the analyzed programs and the other presenting the results from the interviews. In chapter five I will discuss the research findings, before in a conclusive last chapter, answering the research questions and reflecting on the research process.

## **2 Methodology**

This chapter starts with a brief description of the research strategy. During the research the main method used was a content analysis of CCE materials. In addition to this a second method used was interviewing material developers. A description and reflection on these two research methods is given in section 2.3 of this chapter. Before analyzing the CCE materials a preparation period proceeded, in which a framework for analysis was developed. The methodological preparation is presented in section 2.2.

### **2.1 Research strategy**

The research presented in this report consists of three phases which took place within a time frame of seven months. During the first two months a research proposal was written in which the problem description, research questions and objectives were defined. The following four months were used for research. Before however the empirical research started, a two month period of literature review and desk research preceded, in which material selection took place and a framework for analysis was developed. During the empirical research the chosen materials were analyzed with the developed framework. In addition to this content analysis, interviews with selected material developers were conducted. The last phase of the research consisted of analyzing the results and for writing this report.

### **2.2 Research preparation**

#### *Analytical preparation*

In order to analyze the chosen materials, a framework for analysis was required. The first research question on how CC is framed needed some demarcation, which means that some CC frames for further analysis were chosen. This choice was based on academic and popular literature on CC framings. The second research question on the possible influence of culture on CC frames is included in the analytical framework too. Hypotheses on culturally based differences of CC frames were developed. In order to develop these hypotheses, cross-cultural value studies and international CC perception studies, have been reviewed. Inspired by the findings of these studies, hypotheses on influences of cultural values on some CC frames were developed. Culturally specific hypotheses were not developed for all frames. A system of codes was developed, which can be found in appendix C.

#### *Material selection*

In order to find materials for analysis, a web-based research was done. For Germany I used the search term *Klimabildung* while for the Netherlands I used the term *klimaat educatie*. The 20 first web pages were checked and also additional links were analyzed for relevant CCE material. Websites from environmental NGOs operating in both countries were also checked to find out if there was CC information aimed at children or adolescents. The German and Dutch branches of Greenpeace were found to have written material on CC for children and adolescents. Therefore, these websites were chosen for further investigation.

In both countries an abundant variety of CCE materials were found. I used two selection

criteria in order to choose appropriate material for further analysis. These two criteria were the target group (secondary school pupils), and the main focus criterion (CC as main subject). Considering the main focus, I checked whether CC was the main issue of the material found, and if not, the material was excluded from further use.

In Germany secondary school starts at the age of ten to twelve years. Some federal states have a primary school time of four years, while in others children attend primary school for a period of six years. In the Netherlands the primary school takes eight years, starting at an earlier age. The selected material thus will be targeting an age group of ten to 18 years.

After this first selection it was still necessary to reduce the amount of material. I did so by choosing those materials that seemed to be used with a broader geographical scope. Many CCE materials developed by much localized initiatives were also found but not taken into consideration. I selected CCE material developed for use at either provincial or national level. CCE materials aimed at schools in one specific town or region were excluded. Some examples of excluded programs are given in appendix A.

For each country eight CCE materials were chosen. In most cases the entire material contents were analysed. However, there are some exceptions in which the CCE material was only partly analyzed. This is shown in appendix B.

Table 1 presents an overview of the selected materials. The organizations involved in the development of the materials are also presented here. The last column shows the abbreviations used in referring to the different CCE materials. Most of the abbreviations refer to the material developers, however there are two exceptions: for the lecture material *Fair Play*, I have used the abbreviation CIO because the material is part of the Check it Out (CIO) concept. For the lecture material *De Natuurkalender* I have used the abbreviation GLOBE, as this material forms part of the GLOBE program. An English translation of the CCE material titles is presented in appendix D. An overview of the whole titles and subtitles of the materials, as well as developers involved, is given in appendix F.

<b>CCE materials in Germany</b>	<b>Abbr.</b>	<b>CCE materials in the Netherlands</b>	<b>Abbr.</b>
Klimaschutz und Klimapolitik	BMU	Fair Play	CIO*
Klimagerechtigkeit	BPB*	Jij en Klimaat	CMO*
Klimaschutz und Wohnen	DMB	De Natuurkalender	GLOBE
Der Globale Klimawandel	GW*	Bedrijf en Klimaat	IVN
Kleines Handbuch für Klimaretter auf Achse	UFU	Klimaaverandering & Duurzaamheid	OIKOS*
Klima schützen kann jeder	VZ	Make the Link: Climate exChange	PLAN*
<i>Website materials</i>	GP GER**	<i>Website materials</i>	GP NL**
Wann kippt das Klima?	WWF**	Tropisch Nederland	WNF**

Table 1: selected CCE materials in Germany and the Netherlands and abbreviations

\* Materials in the group: global civic education organizations (GCE)

\*\* Materials in the group: environmental organisations (ENV)

## 2.3 Research methods

In this research the framing of CC, within 16 CCE materials, was analyzed. During the research two qualitative methods were used: content analysis was the main method, while in-depth interviews with material developers were conducted in order to gain additional insights into CC framings and cultural influences on them.

### *Content analysis*

For the content analysis a framework of analysis was used, consisting of frames and hypotheses. The frames were operationalized in order to make them researchable. Some of the CC frames analyzed in this research were expected to be either present or absent; these frames have a rather quantitative character and could have been counted. This was done, for instance, for the urgency frame and ecological modernization frame.

Other frames have two extremes, for example, the severity frame which can be either moderate or dramatic. Still other frames are very qualitative, and various research items very used to describe and define these frames. The frame of skepticism for instance was defined using three items. A more detailed description of the frame operationalization is given in table 5.

I tested the analytical framework on five randomly chosen CCE materials. Following this a methodological reflection took place and the system of codes and frames was adjusted. The CC frames were categorized into five clusters, which can be seen as overarching topics connecting similar frames with each other. The final analytical framework consisting of various CC frames and hypotheses is presented in chapter four.

When analyzing the material I did not include audio-visual materials, such as films, that however were often found to be part of the CCE material. I consciously decided to leave out these parts due to time constraints, even though they are also part of the material. I am aware that due to this approach some CC frame characteristics might have been missed out. I made sure however that the omitted films were not the main part of the material.

### *In-depth interviews*

In total four interviews with developers of CCE materials were conducted in January 2012. For each country two organizations were chosen. This choice was mainly based on pragmatic considerations. In the Netherlands interviews were held at *IVN Consulentschap Groningen* and *Stichting Oikos*. In Germany interviews were held with material developers from *Verbraucherzentrale Sachsen* (the federal state branch of VzBz in Saxony) and *WWF*.

The interviews were held in order to enrich and reflect on the results of the content analysis. Furthermore, identifying organizational influences on the CC framings was an aim. The organizations' missions were expected to influence the CC framing, and understanding these organizational influences is one approach of understanding the role cultural values play on CC frames.



The in-depth interviews were semi-structured. A standard interview guide was developed, which can be found in appendix D. Apart from the standard questions, I discussed some of the most characteristic CC frames during each interview. If a frame was found to be very conspicuous or used in an unexceptional way I decided to discuss this frame. If a certain frame was very absent I within the materials this was also taken as reason to pose questions on this frame during the interviews. For each interview the standard interview guide was adopted and extended depending on the frames discussed.

### **3 Conceptual framework**

This chapter consists out of three parts. Firstly the main research concepts will be introduced and demarcated. In the second section CC framing literature which inspired this research is presented. From this literature interesting notions were chosen and translated into CC frames that were used in this research. The third section reviews some cross cultural studies that were supportive for the development of hypotheses on possible influences of cultural values on the CC frames. The final analytical framework is presented in the fourth section, including an overview of research frames and hypotheses.

#### **3.1 Main concepts**

Looking back at the research questions presented in section 1.4, there are two main concepts that need to be demarcated: CCE and cultural values. Considering the concept of 'cultural values', I decided to discuss 'culture' and 'values' separately. The links between culture & CC but also culture & CCE will also be presented. The section ends with a discussion of the concepts of framing and discourse which were relevant methodological concepts within this research.

##### *Climate Change Education*

Educational materials dealing with CC can be developed at various levels, for instance at international, national or local level. The UNESCO but also the European Union (EU) developed programs on CC, which can be seen as CCE initiatives emerging from international level.

This research zooms in on CCE initiatives which are developed and distributed at national or provincial level. Choosing CCE materials with a national or provincial scope of use was an obvious choice as this research tries to investigate in which way cultural values (at country level) influence the way CC is presented within the materials.

CCE can be organized formally or informally and also can aim at various age groups, such as children, adolescents or adults. This research's focus will be on CCE targeting at secondary schools which belongs to the more formally organized CCE initiatives. This choice was based on two assumptions.

Firstly it is assumed, that pupils within secondary schools have, compared to children within primary education a more appropriate age for CCE, which is a quite complex topic. Puk & Makin (2006, p.276) confirm this idea, stating that CC is a topic that should rather be discussed with older ages. Secondly, education at secondary school level is expected to be organized more homogeneously than adult education. Due to this homogeneous character, a country comparison becomes methodologically more feasible.

CCE materials can be developed within schools but also by parties working externally from schools. For this research CCE materials developed by externally from schools were chosen.

Government agencies, companies but also NGOs are some players that can be thought of as external material developers.

For this research NGOs and governmental institutions were taken into consideration as material developers. As this research also tries to find out how values within organisations play a role for CC frames for the analysis I distinguished between environmental organizations and organisations which an explicit international focus which I call global civic education organizations within this research (GCE).

The environmental organizations (ENV) are the branches of Greenpeace and WWF in both countries. Within the group of GCE organizations six representatives were chosen. (BPB, GW, CIO, CMO OIKOS, PLAN). What is important here to keep in mind is that the abbreviations though often be based on the developers represent the CCE materials. BPB for instance develops many educational materials, which do not always have a global focus.

CCE materials developed within a specific school or developed by particular teachers were not analyzed. The choice to focus on materials developed externally from school was made because CC was expected to be presented in a more comprehensive and holistic way. Also, as programs that target a broad geographical region were chosen, it was expected to exclude influences on the CC frames that are rather characteristic for certain schools or teachers.

CCE can occur in various forms. There are expositions where classes are invited to discover and learn about CC. There are also competitions in which classes or whole schools are invited to think about CC and possible solutions. Other forms of CCE are outdoor activities, aiming to educate on CC issues during excursions.

For expositions, competitions and outdoor activities, though being very interesting initiatives, written material on CC was few or not available and therefore these CCE initiatives were not suitable for this research. The type of CCE I was using is lecture packages. This type of CCE offers written material which was aimed to be analysed. Some of the chosen lecture materials included didactic tips and guidelines, while others merely give factual information. In some cases different materials for pupils and teachers were found. Appendix B shows which parts of the chosen materials were analysed.

### *Culture*

There are many ways of approaching and defining culture. A textbook for students of anthropology defines culture as traditions and customs that govern behaviors and beliefs. (Kottak, 2006) According to Kluckhohn (1954: in Vinken, Soeters & Ester, 2004, p.29) "culture is to society what memory is to individuals, including what has worked in the history of society". Here we can think about tools, concepts, ideologies and prejudice. Culture it is further argued is taught to the next generations by example of explicitly.

Kluckhohn and Kroeber (1952) in a compilation present 164 different ways of defining culture. One way of defining culture is to describe it as a "set of shared attitudes, values, goals, and practices that characterizes an institution, organization, or group". This definition goes further than defining culture as traditions and customs only. Culture in this broader

approach can also refer to norms or beliefs commonly hold by a group, which are often unconsciously acted on and hard to be identified at first sight.

The way culture is used in this research is based on the broader way of defining culture. However, within this broader definition a focus on cultural values is chosen. Within this research culture is defined as values, assuming that values play a role in the way CC is framed.

Beliefs on and perceptions about CC are the central focus of this research. Using different CC frames it was tried to find a way to investigate on these beliefs and perceptions. It is assumed that these beliefs and perception are also influenced by cultural values. It is quite complicated to distinguish cultural influences (which are the focus of this research) from other structural or institutional influences. In real life culture and structure often are interlinked and hard to be observed as separate units. Both cultural and structural influences are seen as explaining factors when it comes to CC frames.

Within this research I frequently speak about cultural values. When referring to countries, cultural values at national level are meant, while when referring to types of organizations (ENV and GCE) organizational values are referred at. I only developed hypotheses on possible cultural difference between Germany and the Netherlands. The analysis however goes much further by also investigating which similarities in CC frames can be found in both countries.

While also analyzing how ENV and GCE organizations frame CC it is aimed to better understand the role of organisational values on CC frames. Furthermore four interviews with material developers were held to reach this research aim. Organisational and cultural values also can play a role at the same time. That's why it is interesting to look at the Greenpeace and World Wildlife Foundation (WWF) branches in both countries.

### *Values*

Values exist at various levels. Individuals have personal values, which are always influenced by the person's character and experiences. These personal values are also influenced by the broader cultural context. Broader here can encompass specifically family values, but also values that are shared by a bigger group of people.

This research compares CCE materials in two countries, and assumes that at country level cultural values might influential on CC frames. Though here cultural values are approached at country level it is important to keep in mind that cultural values can also be found at other levels. Within countries regions might differ in values that are hold. Cultural values can also be thought of to be applicable at broader levels than a nation. What is often referred at, for instance, is the term Western culture or European culture. Whenever these terms are used, it is crucial to keep in mind that they are never the only explaining factor. People never think or act due to the cultural values they hold. And if they do so, it is never cultural values from one specific level only that are relevant. How closer one zooms in on specific groups (for instances nations or regions) the more differences appear.

The research furthermore assumes that values are also to be found within organizations (organizational values). The type of organization developing CCE materials might also be a factor influencing how CC is framed.

### *Culture within CC and education*

The way we think and speak about climate and more recently CC is timely and geographically bound as Hulme (2008 & 2009) showed. Education is a societal domain in which culture is expected to play a prominent role. By applying educational practices, society instils values among children. Different organizations and countries may cherish different values and these cultural specific values are expected influence the framing of CC within CCE materials too.

### *Culture and CCE*

CCE, this research assumes might be influenced by culture. More specifically the research analyses how CC frames are influenced by cultural values. This research assumes that the CC frames are influenced by cultural values at national level but also by other factors such as organizational values. Still another level of influence can be the national education system or the dominant paradigm on CCE produced by scientists. The latter however do not receive further attention within this research.

### *Framing*

The research aims to investigate the way cultural values and beliefs influence the framing of CC within German and Dutch CCE materials. Framing in this research relates to the framing of causes, consequences and solutions related to CC. Framing in communication and media sciences is seen as “cognitive maps or patterns of interpretation that people use to organize their understanding of reality” (Goffman, 1974 in: Cox 2010, p. 163). For complex issues framing occurs and this also happens in the case of CC. The concept of framing within this research describes the way CC is presented within the CCE materials. CCE here is seen as one out of many societal domains in which CC framing processes take place.

### *Discourse*

Discourse according to Fiske (1987 in: Cox, 2010 p. 63) “is a recurring pattern of speaking or writing that has developed socially” and which “circulate[s] a coherent set of meanings about an important topic, [such as climate change]”. A discourse can also be seen as an ideological construction or paradigm that is able to “produce, reproduce and transform particular world views or ideologies and exclude others” (Carvalho, 2007 in: Boyce & Lewis 2009, p. 29).

Discourses on CC take place in various societal spheres, for instance in politics or the media. CCE is approached as discursive sphere, such as politics or science, in which a certain CC framing takes place. The differentiation of CC discourses in politics, science and education is useful conceptually, but there are overlaps in reality.

Discourses can be dominant or insurgent. Dominant discourses are taken for granted and are often invisible (Cox, 2010. p. 63). Insurgent discourses help to make them visible while challenging the taken for granted assumptions and offering alternatives. Discourse on CC are various and diverse.

This research focuses analyzes educational material on CC. Within these materials CC is always seen as problematic and humans are seen as playing a role as CC drivers. These broad CC ideas are in line with the dominant discourses on CC within other domains such as science and politics. However how exactly CC is framed might differ, which this research tries to show.

Studies on media coverage of CC have shown that the broader context has influence on the way CC is covered. Context here refers to political, economic and cultural structures (Howard-Williams in: Boyce & Lewis 2009, p. 29). For CCE and the included CC frames the same contextual influence might be relevant. It is however the cultural influences (at country level and from organizations) that is the main focus in this research.

### **3.2 CC framing literature**

In this section seven CC framing studies are presented. There are many more studies on CC frames which all deal with the question of how CC is communicated or perceived. I only present those CC framing studies which were inspiring for the analytical framework of this research.

I refer to CC framing studies in this report, but it should be clear here, that not all studies explicitly speak about CC frames. Some authors such as Nisbet do, while others rather studied CC perceptions, which are culturally influenced (Lorenzoni & Pidgeon). Some studies discuss CC frames at a very general level, while others refer to CC frames within specific country (Ereaut & Segnit) or societal domains (Weingart et al). What they all have in common is that they agree that CC can be presented and communicated in various ways.

These seven studies should be understood as inspiration in the sense that they allowed me develop an analytical framework, with relevant and interesting CC frames. From each of these studies I borrowed one or several notions. The notions these scholars use were either used as CC frames or have been modified as table 2 shows. The CC frames are not a complete overview on how CC could be framed within CCE materials. Some frames I selected due to the assumption that cultural values might play a role on them, while other frames were selected because I was curious how they are used within the CCE materials. A more detailed description of how each frame is defined and used is presented within table 5.

#### *Foust & Murphy (2009)*

These authors speak about a global warming discourse that is characterized by an apocalyptic framing. They argue that CC can be framed as apocalyptic event in two different ways. In the tragic apocalyptic version CC is seen as cosmic fate, while the comic apocalyptic framing leaves room for some human agency influencing the endpoint of CC. Always a catastrophic

end-point is emphasized.

It is assumed that the tragic framing of CC will not be found in the materials. If there is no escape from CC and the destructing consequences, why making educational material at all? The comic apocalyptic framing however might found within the material. In such a framing human agency is possible but just at specific points.

The apocalyptic framing strategy, according to Foust & Murphy has the power and tendency to divide audience. This division might be into heroes and villains. The divisive notion I propose is not automatically linked to an apocalyptic framing of CC. Division can also be an interesting notion on its own to be considered in a CC framing analysis.

From these authors I borrow the notions apocalypse and division. The first is translated into the apocalyptic frame, while the notion of division in this research is split up into three research frames: division, cooperation and conflict.

#### *Lorenzoni & Pidgeon (2006)*

Both authors analyzed public conceptualizations of CC in Europe and the US. They reviewed several CC perception studies, done in the EU or the US. The authors conclude that perceptions of CC can be influenced by concepts such as agency, responsibility, trust but also danger (p. 88). Although the authors mention cultural preferences as separate category that influences CC perceptions, I argue that cultural preferences are also influential on the notions of danger or trust.

I assume that in all materials the notion of danger is somehow present and therefore it is an interesting frame to be analyzed. Danger is transformed into two CC frames: urgency and severity. Both try to find out how CC dangers are presented within the materials.

The second notion borrowed from Lorenzoni & Pidgeon is trust. Three frames on trust were developed. The first one refers to trust into institutions (institutional trust frame) such as the market or governments (ITF). Trust into markets was further specified into a frame that investigates how ecology and economy are presented, which is the second trust frame. Climate protection and economic gains can be either presented as win-win situation or as zero-sum narrative, where either climate protection or economic growth can be aimed at. The ecological modernization frame (EM) investigates this relationship. A mistrust frame (MIST) was also decided to be used within the analytical framework.

#### *Heyd & Brooks (2009)*

These scholars explored the cultural dimensions of adaptation. They argue that responses to environmental change are mediated by culture (p.269). Societies might perceive themselves to be part of nature or rather to be separate from it. Depending on this view adaptive strategies differ.

Non-western cultures are compared with mainstream Western societies (p.270) and



differences in world views were found by the authors. Cultural influences as argued in section 3.1 (*values*) might play a role at various levels, the national being just one. Heyd & Brooks argue that the Western world view can also be seen as a cultural influence. World views according to them include ideas on the relationship between humans and nature. These ideas mediate values and practices and should therefore be investigated on.

Heyd & Brooks present in their conclusive remark that CC requires more fundamental changes instead of mere technological solutions. Scientific and technological innovations alone are not enough. Cultural patterns such as values also need to change. Inspired by these conclusive words I decided to also analyze at which level CC drivers and solutions framed. Their notion of technological preference inspired the development of the 'level frame', which investigates at which level (technological, institutional, cultural) CC drivers and solutions are discussed.

#### *Ereaut & Segnit (2006)*

In their study as described in Risbey (2008), the authors present three types of CC perceptions. They analyzed CC discourses in the UK and described the dominant discourses found as 'alarmism, settlerdom and small action discourse'.

Alarmism perceives CC as too immense and therefore beyond control. This kind of alarmism is what Foust & Murphy (2009) call a tragic apocalyptic attitude toward CC. Settlerdom does not perceive CC to be a serious and problematic issue at all. These two approaches are not expected to be found within CCE materials.

The small actions discourse promises solutions to CC by easy and small changes that do not hurt. The authors however argue this latter approach is not sufficient to solve CC, which might be seen in line with Heyd & Brooks judgement on technological solutions. The discourse of small actions is seen to be relevant for this research and the Small Scale Solution frame therefore was developed (SSS).

#### *Weingart et al (2009)*

These scholars did research on CC discourses in science, politics and the media within Germany. They found differences in approaching CC within these three discursive spheres. Weingart et al states that three forms of dealing with CC characterize the discourses taking place within politics, science and the media: 'politicization, reduction and ignorance.'

Scientists tend to politicize CC, while politicians reduce complexities and uncertainties. The media tends to ignore uncertainties the authors argue. I suppose that reduction of complexities also occurs in the CCE material. Such a reduction is unavoidable. Therefore I do not include reduction of complexities into my framework.

To politicize means to approach an issue from a politic viewpoint. I would argue that this happens when material on CC is made for educational purposes. Making such a material is political already, as it assumes that CC as topic should be dealt with in schools. At the other



side educational materials are expected not to be too ideological, and should present different positions in a value-neutral way.

The third notion 'ignorance' was chosen to be used, and three frames were inspired by this notion: uncertainty, ambiguity and skepticism. What can be ignored are CC uncertainties but also existing ambiguities within CC debates. Ignoring skeptic CC voices is the third form of ignorance which is analyzed in this research.

#### *Baron (2006)*

In his research Baron summarizes several biases that might occur when dealing with CC. He found a preference to undo the effects of CC instead of applying other, more efficient measure ensuring public goods (p. 46). Mitigation and adaptation measures are both relevant reactions to CC and according to Baron (2006) people prefer mitigation measures. I borrow the notion of mitigation preference for the analytical framework in which I make use of the mitigation preference frame (MITPREF).

#### *Nisbet (2010)*

In Nisbet's research different frames on CC, prevailing in the US are analyzed. Nisbet developed a typology of eight CC frames. The morality & ethics frame was chosen to be also used in this research in which the moral frame is analysed. I furthermore investigate if victimization occurs (victimization frame) within the material and if blaming strategies are used (guilt frame).

#### *Summary CC frames*

Table 2 summarizes which studies and notions inspired the frame development (column 1 and 2). The table also presents an overview of the CC frames (third column) chosen for this research. The frame abbreviations (fourth column) as they will be used in this report are presented in the last column. How exactly the CC frames were operationalized, is described in the section 3.4 (*table 5*).

CC framing literature	Borrowed notions	Research frames	Abbr.
Foust & Murphy	Apocalypse	Apocalyptic frame	APOC
	Division	Division frame	DIV
		Cooperation frame	COOP
		Conflict frame	CONF
Lorenzoni & Pidgeon	Danger	Severity frame	SEV
		Urgency frame	URG
	Trust	Institutional Trust frame	ITF
		Mistrust frame	MTF
		Ecological Modernization frame	EM
Heyd & Brooks	Technological Preference	Level frame	LEV
Ereaut & Segnit	Small Actions	Small Scale Solution frame	SSS
Weingart et al	Ignorance	Uncertainty frame	UNC
		Ambiguity frame	AMB
		Skepticism frame	SKEP
Baron	Mitigation preference	Mitigation Preference frame	MITPREF
Nisbet	Morality	Victimization frame	VICT
		Guilt frame	GUILT
		Moral (morality) frame	MOR

Table 2: CC framing studies, relevant notions, research frames and abbreviations

### Clusters of frames

From the insights of the CC framing literature, research frames were either chosen or developed. Some of the frames relate to each other, and therefore clusters have been made. Except from the mitigation preference- and level frame all other frames were included in one of the five clusters. Each cluster is described briefly, while table 3 summarized the categorization of frames into the clusters.

The cluster 'tone' includes those frames that deal with the way dangers of CC and are presented. Tone here can be understood as being situated at a continuum between 'moderate and alarmist'. The 'ignorance cluster' was named as such because the included frames can either be mentioned or ignored. The third cluster includes frames that deal with trust and confidence. Three frames are included here, which have in common that they express ideas on how CC should be solved and which actors and solutions are considered trustworthy. Also a mistrust frame is included here. The 'division' cluster deals with polarizations and divisions within the material. Also attention is given if CC is rather seen as issue of conflict of cooperation. The last cluster deals with frames that relate to aspects of morality.

<b>Tone</b>	<b>Ignorance</b>	<b>Confidence</b>	<b>Division</b>	<b>Morality</b>
APOC SEV URG	AMB UNC SKEP	EM MIST ITF SSS	DIV CONF COOP	MOR VICT GUILT

*Table 3 Frames and clusters (except MITPREF & LEV)*

### 3.3 Cross cultural value studies

Parallel to the frame development, I reviewed comparative empirical studies dealing with cultural values or CC perceptions. These studies informed the formulation of the hypotheses and will be presented and reflected on in the following sections.

The sources used for the development of hypotheses are EU surveys and comparative studies on cultural values. These cross-cultural value studies are based on the work of Hofstede and Inglehart. Although the EU surveys do not investigate cultural values explicitly, they are considered to be useful indications of different CC perceptions in both countries. For some hypotheses I also used my own assumptions and non-scientific literature on cultural difference between Germany and the Netherlands.

#### *Hofstede: an introduction*

Hofstede within his work *Cultural Consequences* (2001) analyzed 53 countries and distinguished four cultural dimensions. For each dimension country specific indexes were calculated. I checked for similarities and difference between Germany and the Netherlands concerning the four dimensions' indexes. Also the absolute position of both countries was considered during the review.

These indexes however do not say much on their own force. Compared with other countries' indexes they only give an indication of how strong a certain dimension prevails in a country compared to others.

Hofstede compared the index to other cross cultural studies, and analyzed correlations. For each cultural dimension he describes what a low-versus high index means for other societal sectors such as families, school or politics for which he refers to other cross cultural studies.

I checked the cultural dimensions and the correlated themes on a possible link with the CC frames used in this research. The following section gives a description of each dimension and reflects on the position of both countries. For each dimension also assumed links to the CC frames used in this research are presented.

The way Hofstede collected the data informing the indexes is criticized, but at the same time the indexes and cultural dimensions are broadly referred at in other studies. I decided to use

the indexes to get some impression on possible cultural differences and in order to develop justify my hypotheses. In order to get a more balanced view on assumed influences of cultural values I used other studies, such as EU surveys, too.

### *Hofstede's cultural dimensions*

The first dimension is called Power Distance. This dimension is about the way societies handle human inequality. In some societies dominance is formally included in existing systems, while other societies de-emphasize dominance. The acceptance of hierarchies and authorities also is said to differ in societies.

Both countries have a low Power Distance Index (PDI) and are close to each other in the ranking of all countries. Hofstede found the index to be correlated with the importance that is given to individual freedom versus equality. A low PDI correlates with a higher emphasis on individual freedom compared to equality.

The way a societies deal with guilt and blame, was found to correlate with Hofstede's index. In high PDI countries the underdogs are blamed, while in countries with lower scores the system as a whole is blamed. Hofstede found that the views towards governments also correlate with the index. Countries with a high PDI rather tend to mistrust governmental structures.

This cultural dimension might play a role for the frames of skepticism and guilt. As the index however is very similar, no country differences in CC framings are expected. Both countries score rather low on the index. If linked to the frames it is assumed that guilt and skepticism frames in general are seldom used.

The second dimension is called Uncertainty Avoidance. Uncertainty is unavoidable for human. Societies however adapt to and deal with uncertainties in different ways as is argued by Hofstede.

Germany scores a bit higher on the ranking and as such its Uncertainty Avoidance Index (UAI) indicates higher uncertainty avoidance. According to Hofstede the UAI has implications for other domains. Where the UAI is high there is a belief of powerlessness toward external factors, while where UAI is low, one tends to belief in one's ability to influence own life and others. Where UAI is lower there is also a more open attitude towards change and innovation instead of focusing on conservation, law and order. In societies with a low UAI, truth is rather presented as something relative.

This cultural dimension is assumed to play a role for the frames skepticism, ambiguities and uncertainties, all belonging to the ignorance cluster.

The third cultural dimension is called Individualism & Collectivism. Societies are ranked using the IDV index, which expresses the continuum between individualism and collectivism. On this dimension the two countries' ranks are less similar than for the UAI and the PDI. From 53 countries the Netherlands have one of the highest score, which according to Hofstede means

a strong tendency and preference towards individualism. In countries where IDV is high, individual freedom and responsibility are strongly encouraged. The individual is seen as responsible for them selves and blaming the system is not done, when analyzing the culprits of a societal situation. In family live personal opinions are strongly favoured which is also found to be true in schools. Competition is stimulated in high IDV countries and individual interests prevail over collective interests.

This dimension is expected to be relevant for the small scale solution frame but also the guilt frame.

The fourth dimension, analyzed by Hofstede is called Masculinity & Femininity. On this continuum the greatest difference between the Netherlands and Germany was found. While Germany scores high on the masculinity index (MAS), indicating a strong tendency to masculinity, the Netherlands, according to Hofstede are a typical example of a feminine society and have a low MAS index.

In high MAS countries there is a stronger focus on excellence and competition, while in low MAS countries cooperation is encouraged. Also political discourses seem to differ in the tone they apply. In high MAS countries more adversarial debates are found, while in low MAS countries the discourses are rather moderate. Ego versus relationship orientation also is said to correlate with the index. Attitudes toward institutions and political establishment tend to be negative in high MAS countries.

This dimension might be relevant for the frames cooperation and conflict, but also guilt, severity and mistrust.

### *World Value Study (WVS)*

Since 30 years this global research project investigates values and beliefs of different societies. In national surveys, value preferences are illustrated since 1981. Most of the world's countries are covered in the WVS.

From the survey data a theory on cultural dimensions have been developed. According to Inglehart et al two value dimensions are able to explain 70% of cross cultural value variance of more specific values. One dimension opposes traditional versus secular-rational values. The other dimension polarizes survival versus self expression values. For this study I reviewed the so called cultural map of the world en also the source book on human beliefs and values by Inglehart et al (2004). The cultural map, in which all countries are positioned, is presented in appendix E.

### *WVS source book and cultural map*

The source book contains data from the different World Value Studies. Section B explicitly deals with values on the environment. Three questions were chosen, as they consider how environmental protection and economic targets relate to each according to the respondents.

- I. One survey question states: *I would give part of my income if I were certain that the money would be used to prevent environmental pollution.* From the German respondents 33% agreed with this statement while in the Netherlands 75% agreed. Here a link with the SSS frame is assumed
- II. The second survey question was considered relevant, as it might be an indicator for possible cultural differences on the institutional trust frame (ITF). The statement: *I would agree to an increase in taxes if I were certain that the money would be used to prevent environmental pollution* was answered differently too in both countries. 55 % of the Dutch respondents agreed to this statement, while only 29% in Germany did so.
- III. The third survey statement was chosen as it might also be relevant for the institutional trust frame (ITF). The statement is: *Government should reduce environmental pollution, but it should not cost me any money.* More people in Germany (68%) agreed to this statement compared to the Dutch respondents (23%).

Based on the survey questions within the WVS project a cultural map (appendix E) was also developed including to cultural dimensions. Germany and the Netherlands are situated closely to each other on this map, which indicates that rather similarities than differences in CC frames might be found.

The secular-traditional dimension is not taken into further consideration as the values connected to it, such as importance of religion, parent-child ties, deference to authority and traditional family values are considered by the researcher not to be relevant for CC framings.

The second dimension which relates to survival-self expression dimension seems however relevant, as it covers aspects such as trust but also priority to environmental protection instead of economical growth. The score of Germany on the dimension is a bit more orientated towards survival values is higher, while in the Netherlands a higher score on self expression values was found. This difference however, compared to the positions of other countries is small.

According to the authors societies with higher survival values, score lower on trust. Assuming that trust here also refers to institutional trust, the ITF frame but also the mistrust frame (concerning institutions) might be influenced. The authors argue that higher values on self expression values correlate with a higher priority is given to environmental protection. A link with the ecological modernization frame is expected too.

### *Eurobarometer surveys*

Since 1973 the European Commission is monitoring the public opinion in the Member States. The standard Eurobarometer surveys are conducted twice a year. In addition the European Commission also conducts surveys that address specific topics. I have chosen to review surveys that explicitly deal with the environment or CC. The idea of reviewing these surveys was based on the assumption that they might shed light on possible similarities and

differences in the way the two countries (public perception) deal with climate change.

Special surveys concerning attitudes toward the environment in general have been conducted since 1983. For this research the most recent surveys have been analyzed. In some of these special Eurobarometer surveys on the environment, it is possible to find insights on public opinion on CC in Germany and the Netherlands. If survey questions deal explicitly with CC, they will be presented here.

Also special CC related surveys have been published. This however started much later. The first survey (no. 300) that explicitly deals with CC was published in 2008. Since then three other surveys (no: 313, 322 & 372) followed. The surveys do not differ much in the way they are designed, neither are there striking differences in outcomes.

### Eurobarometer on CC

Three EU surveys on CC (no.: 300 & 372, 322) were analyzed. From survey 300 three questions are discussed below. They deal with perception of the severity of CC, attitudes toward CC and responsibility to solve CC. For the three survey questions the main outcomes are presented below, and also the CC frames that might be linked to them will be mentioned.

When asked about the severeness of CC the following distribution of answers has been found in the survey. In Germany 74% agree that CC is very serious, while in the Netherlands 62% agree. On EU average 75% agree that CC is a very serious issue. The data indicates that CC is considered a bit less severe in the Netherlands. The frames urgency and severity might be connected to the survey outcomes dealing with perceptions of CC severity.

Chapter three of the same survey measures attitudes toward CC and ways of combating it. Two statements seem worthy to be mentioned as they might relate to the frames of ecological modernization (first statement), skepticism and severity (second statement).

- I. Fighting climate change can have a positive impact on the European economy*
- II. The seriousness of climate change has been exaggerated*

Regarding the first statement in the Netherlands just 38% agreed that combating CC could have positive influences on the economy. In Germany 60 % believe this could be the case. Considering the second statement on seriousness, more people in the Netherlands (40%) than in Germany (24%) believe that CC severeness is exaggerated.

Thirdly a question on responsibility was found to be interesting in the EU survey. Considering levels of responsibility four items were mentioned in the survey. Responsibility to solve CC is laid on citizens, industry, national governments or the EU. Here a link to the ITF is assumed.

Industry is related to market trust and national governments and the EU could be seen as governmental institutions. The survey data states (p. 45) that in the Netherlands a higher amount (79%), compared to Germany (54%) of respondents is thinking to not do enough on the issue of CC. The CC frames mistrust and guilt might be linked to these survey findings. It



might be possible that in the Dutch materials more individual mistrust and blaming of individuals are found.

More people in Germany think that the government is doing about the right things on CC (40%) compared to the Netherlands were only (30% agreed to this statement). Here a link with the ITF (especially on governments) could be expected.

In the survey no. 322 a new question was introduced, concerning the relationship between environmental protection and economic growth. The statement presented in this survey is: *The protection of the environment is an obstacle to the economic growth in the EU.* (p. 57). If considering all EU members it seems that the German respondents consider CC protection less as an obstacle to economic growth. Only 16% think this is the case. The EU average is found to be 26%. In the Netherlands a higher part of respondents agree that CC protection might disturb economic growth (37%).

In the most recent survey on CC (no. 372), an additional question was introduced which might also be linked to the ecological modernization frame. Concerning the statement *fighting CC and more efficient resource use might boost the economy and jobs*, a higher part is inclined to agree to this statement in Germany (79%) compared to the Netherlands (71%).

#### Eurobarometer on the environment

The EU survey no. 217 on attitudes of European citizens toward the environment was reviewed too. The survey question on how to solve environmental problems is discussed here as a link with the institutional trust frame (ITF) is thought to be possible. Respondents were asked to consider several solutions to environmental problems. In total eight solutions are presented. Most solutions refer market or governing mechanisms to solve environmental problems. I assumed that similar solutions also are applicable for CC.

The Dutch respondents preferred much above EU average (NL: 45%, GER: 31%, EU: 25) the introduction of higher financial incentives to industry, commerce and citizens. This might be relevant for the ITF, both related to markets and governments. Though financial initiatives are a market mechanism always also rule by governments are needed to implement these initiatives.

In Germany at the other hand many people agreed with the statement that better enforcement of existing environmental legislation is an adequate solution to environmental problems (GER: 55%, NL: 33%, EU 45%). This survey finding might be an indication for the ITF too, assuming that trust into governments might be higher in Germany.

#### *Other sources*

In order to get a feeling of how CC is dealt within both countries educational materials, cultural value studies and EU-surveys were reviewed. It was tried to connect the study outcomes to particular CC frames, used in this research. This connection is used as justification for the hypotheses that will be presented chapter four. Before proceeding with a presentation of the analytical framework in the next chapter, some of my own assumptions on CC frames will be mentioned here. These assumptions are grounded on non-scientific



literature on cultural differences and my own experience with what I have felt as cultural differences while living in the Netherlands. This means they should be understood as not scientifically proven but rather as being a possible indication on how cultural values might influence the CC frames.

#### Moderation and exaggeration

The notion of climate catastrophe is important within CC debates in Germany as was found by Weingart et al (2009). Though being a stereotype, the Dutch are often referred to as people that deal with issues as matter of fact and leaving out exaggerations (Linthout, 2006). The CC frames regarding severity, urgency and apocalypse could be influenced therefore by cultural values, all of them being expected to be less frequently found within the Dutch materials.

#### Cooperation and division

According to Linthout (2006), but also my own observations friend-enemy divisions and fighting rhetoric are more easily accepted in Germany than in the Netherlands. Polarization and division at the other hand is not very much valued in the Netherlands. Ideally people are approached as equal and cooperation is emphasized. I expect the acceptance and usage of the divisive frame to be also influenced by cultural values. Also the frames conflict and cooperation might be influenced by the cultural preference regarding division and cooperation.

#### Bureaucracy (GER)

Germany is often described as bureaucratic country where rules and regulations are important (Linthout, 2006). This could influence the frame of institutional trust, more specifically of governmental trust which might be stronger in Germany.

#### Calvinism (NL)

Due to influences of Calvinism within the Netherlands a focus on individual responsibility might be more prominent within the CCE materials. The SSS frame and guilt frame are expected to be influenced by this cultural value.

### **3.4 Framework for analysis**

In the preceding section I mentioned assumed links with CC frames. For most of the CC frames used in this research, a link was laid with to possible cultural differences. In table 4 which follows, the findings and assumed links from the preceding section on cross cultural values studies are transformed into hypotheses. This has been done for twelve CC frames which are presented in table 4 below. The hypotheses are all referring to possible cultural differences. This however does not mean that similarities in frames in both countries are not interesting. The Power Distance dimension (Hofstede) but also the survival versus self expression dimension (World Value Study) indicated similarities in cultural preferences that might be reflected in the CC too.

	<b>Country specific hypotheses on CC frames</b>	<b>Sources</b>
AMB	In NL* ambiguities are more often mentioned	Hofstede UAI
APOC	Apocalyptic notions are more prevalent in GER*	Hofstede MAS & Weingart & Linthout
CONF	Conflicting interests and positions are stronger in GER	Hofstede MAS & Linthout
COOP	Cooperation is stronger pronounced in NL	Hofstede MAS & Linthout
DIV	Division and polarisation are more prevalent in GER	Linthout
GUILT	General notions of guilt and blame stronger in GER	Hofstede MAS & IDV
	Blaming individuals stronger in NL while blaming the system more often done in GER	EU 300 (resp.) & Linthout & Hofstede MAS
MIST	Mistrust into institutions more prevalent in GER while mistrust into individuals more prevalent in NL	Hofstede MAS & EU 300 (resp.)
SEV	Stronger severity frame (dramatic and extreme) in GER	Hofstede MAS & EU 300 (sev.) & (att.) & Linthout
SKEP	CC skepticism is more often referred to in NL	Hofstede UAI & EU 300 (att.)
SSS	Small Scale Solution are stronger emphasized in NL	Hofstede IDV & WVS (1) & Linthout
UNC	Reference to CC uncertainties is more often found in NL	Hofstede UAI
URG	Reference to urgency found more often in GER	Hofstede MAS & EU 300 (sev.) & Linthout

*Table 4: frames with country specific hypothesis and informing sources*

*\*GER: refers to German CCE materials*

*\*NL: refers to Dutch CCE materials*

*sev./att./resp.: topics discussed in EU survey questions (severity, attitude and responsibility)*

For several CC frames opposing hypotheses could have been made, as the data on cultural differences indicated different directions on how the CC framing could be influenced. That's why on these frames (EM and ITF) no hypotheses are presented. For other frames (MITPREF, LEV, MOR and VICT) no relevant literature was found.

### *Operationalization of CC frames*

In this section the CC frames are further demarcated. I either give a description of the frame, or if considered useful, guiding questions on the specific CC frame are formulated.

	Operationalization/ <i>guiding questions</i>
AMB	<i>Are positive impacts, beneficiaries or contradictions mentioned? How do ambiguities look like?</i>
APOC	Current situation is problematic and worsening. Humans have the means to change this situation, though if no appropriate (in time and means) actions occur, situation will downgrade even more and a point of no return might be reached.
CONF	<i>Are conflicting interests mentioned in the material? Which underlying reasons for conflicts are presented?</i>
COOP	<i>Is the need of working together or cooperative attitudes in CC matters mentioned?</i>
DIV	<i>Are divisive and opposing lines presented? Which types of lines are found?</i>
EM	This frame, if recognized means that economic growth and climate protection are presented as going along with each other (win-win situation). By protecting the climate, economical gains are feasible. If both are presented as zero-sum-game, either one or the other can be reached, the EM frame is said not to be present.
GUILT	<i>Are some groups described as guilty for CC? Are certain groups blamed for having caused CC?</i>
ITF	<i>Which institutions or institutional measures are presented as trustworthy in order to solve CC.</i>
MIST	<i>Which actors (market, government, individuals) or measures (institutional measures or individual) are mistrusted when it comes to solving CC?</i>
MIT PREF	This frame means that nothing is said on adaptation at all. All measures discussed are solutions in the realm of mitigation. The material might focus on mitigation which is defined a weak MITPREF frame or ignore adaptation at all, which is a strong MITPREF frame.
MOR	<i>Is CC framed in terms of justice or ethics? Are clear judgments on good or bad actors or actions made? (moralistic)</i>
SEV	<i>How severe (low versus high) is CC presented in general? How dangerous (low versus high) are CC impacts presented?</i>
SKEP	This frame can exist in three forms. Firstly on the existence of CC, secondly on about the anthropogenic character and thirdly as skepticism which doubts that CC is problematic.
SSS	SSS are those solutions that do not hurt, which are not expensive and easy to apply. Mainly these solutions are expected to be linked to individual actions on CC.
LEV	<i>At which level should CC be solved? (Technical, institutional, culturally)? Is CC a technological, institutional or cultural challenge?</i>
UNC	<i>Are CC uncertainties mentioned? Which kinds of uncertainties are mentioned?</i>
URG	<i>Are notions of urgency found How does the reference to urgency look like?</i>
VICT	<i>Are certain groups victimized due to CC? (e.g. presented as helpless) What are the underlying reasons for victimization? (more vulnerability, less adaptive capacity)</i>

Table 5 Operationalization of CC frames

## **4 Presentation and analysis of results**

During the analysis several CC frames were considered. As mentioned before, 16 out of the 18 frames were put into clusters. In the following chapter I firstly give a short overview of the materials which been analyzed (section 4.1). Then I describe the findings for the five clusters (sections 4.2-4.6) which are followed by two sections on the frames of mitigation frame (section 4.7) and level frame (4.8). Before summarizing the findings in section 4.10 an overview of the findings from the four interviews is presented in the ninth section.

The sections 4.2 to 4.8 are organized in the following way. For each cluster I refer to included frames and per frame present some exemplifying quotes first. Then I briefly summarize how each frame was approached before presenting the main findings per frame. Hereby I focus on how often frames were found back or which types of frames were found. I also compare the two countries (GER & NL) and types of organizations (ENV and GCE) with each other focusing on how frames are used. I will present differences but also similarities in frames here.

In an overall assessment (either on clusters or frames) I discuss the influence of cultural values on the frames under investigation. This is done in more detail for frames for which hypotheses were developed in advance. For six CC frames no hypotheses were developed as either no literature (EM & ITF) was found or literature on cultural values pointed into different directions (LEV, MITPREF, MOR & VICT). For these frames, none withstanding if similarities or difference were found I also try to refer back to possible cultural influences, which however need to be further research on. Each overall assessment also includes a table in which the findings are summarized. In this overall assessment I focus on influences of cultural values at country level on the frames. Regarding organizational influences section 4.10 discussed them in more detail.

For the sake of analysis regarding organizational influences I distinguished between environmental NGOs (ENV) and those NGOs that aim at global civic education (GCE). GP GER, GP NL and both national branches of the WWF belong to the group of environmental NGOs. I have chosen BPB, GW, CIO, CMO, OIKOS and PLAN to be considered as NGOs that deal with global civic education. The resting six organizations were not considered when analyzing organizational influenced on CC frames.

## 4.1 Description of the materials

Before presenting the outcomes of the materials analysis and interviews I briefly describe how the 16 materials look like. I present the main approach toward CC of each program and if applicable I will also mention how the material fits into a broader CC program or campaign.

### Greenpeace

Greenpeace in the Netherlands and Germany were included in the analysis, though they do not offer CCE materials directly to schools. I have been analyzing the content of the children and youth websites of Greenpeace on CC. GP NL links the topics climate and energy with each other. In informational brochures children are informed about climate change and energy use. The German branch of Greenpeace (GP GER) presents CC in four chapters that deal with climate, climate change, climate protection and a last section on what can be done.

### WWF and WNF

The Dutch and German branches of WWF developed CCE materials. WNF worked together with the material developer Code Name Future (CNF). In cooperation several modules on WNF topics were developed. The module *Tropisch Nederland* (Tropical Netherlands) was chosen for analysis. This module is web-based which means that pupils do work on the module via the CNF website. Many films on CC impacts are shown and there are a lot of links to CC information elsewhere. The module often refers to the website of WNF, which has been analyzed too.

WWF in Germany, in cooperation with the *Unabhängiges Institut für Umweltfragen (UfU)* developed the material *Wann kippt das Klima?* (When does the climate tumble?) This material is special compared to the others as it is also offered to future teachers during their professional education. WWF tries to reach future teachers to make them aware of sustainability issues which they can discuss later on in class. The module consists out of three parts, which can be used independent from each other. One part is a game in which aspects of global CC justice are discussed. The second part deals with tipping points within the climate system, and the third part deals with political activism, but also the work WWF is doing on CC.

### Climate & Business (IVN)

The module *Klimaat & Bedrijf* (Climate & Business) is an initiative of the IVN program *Scholen voor Duurzaamheid (SvD)* (Schools for Sustainability), which is a national program of IVN targeting secondary schools. Several SvD projects have been run since 2001. Climate & Business started in schools in 2008. The project is based on a special methodology which is called narrative approach to education, which is typical for all projects within the SvD concept. Due to this methodology no clear cut lessons on CC are offered, but rather pupils are presented a storyline, which should enable them to identify more with the issue. Before a module is run at schools teacher receive training on the module and the special methodology. The handbook for teachers has been analyzed.

The module contains five episodes which are working steps through the project. Pupils work on a real life task which is offered by companies that tries to apply in a more climate friendly

way of doing business. Within the module the pupils develop their own climate intervention teams that give advice to companies. These teams are expected to know what climate neutral means to them, which they figure out in episode 2 of the module. In the third episode the teams receive an order by a company which they visit later on (episode 4.) The last episode includes a presentation of the findings done by pupils on the company.

### Fair Play

The CCE material *Fair Play*, developed by the Dutch NGO Oikos and COS Noord Holland also makes use of the storyline approach to education. CC within the module is linked to poverty reduction and global solidarity. Two main characters, Jonathan and Kim are leading through the story. Jonathan, a boy with Kenyan background and his girlfriend Kim try to find out what the consequences of CC are and what can be done to find solutions to CC. The module is part of the Check in Out (CIO) program and consists out of five episodes as well. The module also strongly is interlinked with issues of development cooperation.

### Climate Change & Sustainability

Another module belonging to the CIO concept is called *Klimaatverandering & Duurzaamheid* (CC & Sustainability). This module was developed in 2003. As the title indicated, CC is connected to sustainability issues. The module consists out of four lecture units that are connected to each other. An introductory text is also included, which gives an overview on what CC and sustainability mean and how they are linked to each other.

Similar to the project that make use of a story line approach to education 'CC & Sustainability' encourages pupils to find out answers on their own. Groups work on different aspects of a bigger topic, and later on, connect their findings to each other. The global context is important to be considered and participants are motivated to find out what they could do about CC.

### Nature's Calendar

The third CCE material also belonging to the CIO concept is called *De Natuurkalender* (Nature's Calendar). This module at the same time forms part of the GLOBE school program, which is an international program at which scientists and pupils cooperate to gain knowledge on the environment and climate.

The material Nature's Calendar is found online and aims at collecting observations in nature. This material is exceptional from all other as it deals with CC impacts on nature only. No drivers and impacts on human systems are discussed, neither are solutions to CC an issue of the module.

*De Natuurkalender* is compared to the other programs is most strongly based on a natural science approach. It consists out of two main parts. The first part is on doing observations in nature while the second part deals with CC. It was just part two of the module which has been analyzed. The module was developed by *SME Advies* and *Wageningen UR*.

### You and the Climate (CMO)

The material *Jij en het Klimaat* (You and the Climate) was developed by Centrum voor



Mondiaal Onderwijs (CMO Nijmegen) and is an informational booklet offered to pupils. The material is exceptional as it does not contain tasks or questions, but it is a mere collection of information. In this sense it is similar to the web-based CC information offered by GP GER and GP NL.

#### Climate ExChange (Plan)

The last Dutch program presented here, was developed by the developing organization Plan. This module on CC is called *Make the Link-ClimateExChange*. Seven modules are included, from which the first five modules were analyzed. The lecture material is embedded in a bigger project, which also includes an interactive website, teacher trainings and campaign training and budget for climate actions of the participating classes.

Plan is an organization that focuses on children in developing countries. Children rights are an important topic of the organization and a global justice and human rights perspective is also found back within the lecture materials.

#### Climate Change: general questions (German Watch)

A very global perspective on CC also characterizes the materials developed by the German NGO German Watch. German Watch in cooperation with the NGO *Geoscopia* developed a project called *Klimaexpedition* (Climate Expedition). Satellite images are presented in order to make CC more visible. In addition to this expedition, German Watch developed several lecture materials. The module *Klimawandel: Allgemeine Fragen* (Climate Change: general questions), the most generalized material on CC was analyzed.

#### Climate Justice (BpB)

The CCE material by *Bundeszentrale für Politische Bildung (BpB)* also approaches CC from a global perspective. BpB aims at promoting awareness for democracy and participation in politics. Several informational brochures for use within schools are offered by BpB. The module no. 73, called *Klimagerechtigkeit* (Climate Justice) was chosen for analysis. A global approach toward CC, together with CC justice, characterizes this material.

#### Climate Protection & Climate Politics (BMU)

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) developed several CCE materials for different school types. For secondary schools the module *Klimaschutz und Klimapolitik* (Climate Protection and Climate Politics) was chosen. The module also is based on a story. Four main characters lead through the different chapters. From the five chapters three were analyzed, each dealing with CC drivers, impacts and solutions.

#### Climate Protection & Living (DMB)

The German Association of Tenants (Deutscher Mieterbund) developed a CCE material called *Klimawandel&Wohnen* (Climate Protection&Living). Climate protection within sector housing is the main focus of the program. It is mainly individual actions to protect the climate are zoomed in. The organization UfU was also participating when the material was developed.

Everybody can protect the climate (VZ)

The German Consumer Association VzBz developed a broad dossier on CC in which seven modules on CC are included. I have chosen the module *Klimaschützen kann jeder* (Everybody can protect the climate) for further analysis. This module is based on an exposition that presents posters on climate protection measures. Both, the lecture module as well as the poster exposition was analyzed.

Little guide for mobile climate saviours (UfU)

The material *Kleines Handbuch für Klimaretter auf Achse, und solche die es werden wollen* (Little guide for mobile climate saviours [...]), was developed by UfU and mainly focuses on climate friendly mobility. CC is presented, next to environmental pollution as consequence of the current energy use. The material aims to show strategies for GHG reduction within the sector of mobility. It is aimed to show that children are not passive actors when it comes to CC, but rather that they can actively influence CC.



## 4.2 Tone

In all materials CC is presented as a problem. How exactly this problem presentation looks like however varies. The question how earnest or grave CC is, can be dealt with quite differently. Three frames were used within this cluster in order to find out in which tone CC is presented. For each frame I give some striking quotes. Then I summarize how the frame was operationalized, before a description of the research results is given.

### Apocalyptic frame

*If nothing is done, terrible consequence will follow. The future of societies can only be ensured if climate change is solved (WWF)*  
*The catastrophe already started, we have to act to avoid the most severe If no climate protection occurs the consequences will be even more risky and unbearable. (VZ)*  
*If we act now we still have a change to avoid the most severe consequences (GP GER)*

During the analysis it was checked whether an apocalyptic framing of CC was presented or not. As described in section 3.5 an apocalyptic frame includes the notion of a point of no return. Also the frame includes that CC as a problem is worsening, and humans have to find adequate solutions before it is too late.

In eight out of the 16 programs the apocalyptic framing was found. Five out of the eight German organizations use an apocalyptic framing and among the Dutch material three out of eight programs make use of such a frame. Three out of four environmental NGO's (GP GER, WWF and WNF) use this frame, while from the NGOs that focus on global civic education three out of six (GW, CIO and PLAN) use this frame.

### Urgency frame

*We have to start acting now (WNF)*  
*Something really has to happen now (CIO)*  
*It is five minutes to twelve (BMU)*

The urgency frame was said to be present if the notion of time constrains or hurry was found. As also time constraints are characteristic for the apocalyptic frame, both frames might go together. Notions of urgency might be used to increase a dramatic and alarmist description of problematic character of CC.

The urgency frame was found to be used in seven materials (GER: 5, NL: 2). Three out of four environmental NGOs make and two out of six (BPB and CIO) global civic education NGO's use this frame.

The urgency frame is often presented as metaphor as shown by the BMU quote above. GP GER uses the metaphor of a glass being filled up to the margin, as sigh of urgency. Next to this explicit usage of the urgency frame, WWF more implicitly makes clear that we have to hurry, stating that CC occurs in a very torrid pace.

### Severeness frame

*Serious climate problems that might occur in the future (IVN)  
CC is one of the biggest threats to our planet (PLAN)*

While analyzing this frame the two extremes "moderate versus dramatic" were considered. In case CC was

presented in a dramatic or alarmist way the severity frame was said to be present. The frame is interesting to be analyzed, as communicating dangers can be a quite discouraging step. At the one hand it is necessary to make clear that there are dangers related to CC at the other side the situation should not be described too dramatic in order to avoid fatalistic attitudes.

Five out of the 16 programs make use of the severity frame. Climate alarmism was found more frequently in the German material. In four German materials dramatic or alarmist descriptions to characterize CC are used. A very strong severeness frame is presented by GP GER, using for instance expressions such as life threatening and dramatic consequences or devastating impacts on the climate etc. Within the Dutch material an explicitly severity frame was found only once in the module developed by PLAN.

Two out of four (GP GER and WWF) environmental NGO use this frame, and two out of six (BPB and PLAN) global civic education NGOs do so.

In the Dutch material were the story line approach to education, the severeness frame seems present, but in an individualized perspective. CIO: *Jonathan is quite shocked* (p. 24) and OIKOS: *I was terribly afraid* (p.9).

While reviewing the material often expression of danger were used but in a very abstract and far-from-my-bed style. In those cases, though dangers are mentioned severeness was labelled to be moderate. CMO for instance mentions that CC might become dangerous, without becoming concrete. Also GP NL speaks about huge consequences but staying on a vague level of impact description.

The image of a breaking earth was used in materials for younger target groups (UFU and CMO) picture however is still very moderately presented as it is said that CC might be dangerous, without becoming concrete. GLOBE mentions that CC at its own is neither good nor bad, but that humans do judgments on these changes.

### Overall assessment and interpretation (tone)

The frames severity and urgency seem to be connected. In most cases (4/5) that severity frame was found, also the urgency frame was recognized. It seems that the severity frame can be emphasized by using notions of urgency.

The apocalyptic frame seems to go together with the urgency frame, a link that was expected, due to the operationalization of the apocalyptic frame. If both frames "urgency" and "severity" are taken together, it becomes clear that within the German materials the tone is more strongly characterized by climate alarmism (GER: 9/16, NL: 3/16). If all three frames

within this cluster are taken together this impression is even more supported (GER: 13/18, NL: 6/18).

Considering the type of organizations, environmental NGOs show a stronger tendency toward climate alarmism than the GCE organizations (ENV: 8/12, GCE: 7/18). Organizations that used all three frames together are ENV organisations in Germany. It is however not only ENV organizations that use an alarmist tone. PLAN, CIO and BPB also use more than one of the frames, indicating a strong tendency toward alarmist presentations of CC dangers.

	APOC	URG	SEV
<b>BMU</b>	*	*	
<b>BPB</b>		*	*
<b>DMB</b>			
<b>GP GER</b>	*	*	*
<b>GW</b>	*		
<b>UFU</b>			
<b>WWF</b>	*	*	*
<b>VZ</b>	*	*	*
<b>CIO</b>	*	*	1
<b>CMO</b>			
<b>GP NL</b>			
<b>GLOBE</b>			
<b>IVN</b>			
<b>OIKOS</b>			1
<b>PLAN</b>	*		*
<b>WNF</b>	*	*	

The three hypotheses related to tone are all corroborated. It firstly seems to be true that an apocalyptic framing is more prevalent in Germany. Also it was found that CC dangers are presented in a more moderate way in the Dutch material, while the German material is characterized by a more dramatic presentation of CC. The hypothesis on the severeness frame is thus also corroborated. Reference to urgency was found more often in the German material which supports the hypothesis on the frame of urgency.

The hypothesis on the apocalyptic frame was based on Hofstede's (2001) theory of cultural dimensions and more specifically his findings on the masculinity (MAS) index and the related cultural traits. Also Weingart et al (2000) and Linthout (2006) informed the hypothesis on apocalyptic framings.

*Table 6 Overview results cluster tone*

*\* In column APOC or URG: frame present*

*\* In column SEV: dramatic or alarmist*

*1: personalized SEV frame*

Both the hypotheses on urgency and severeness were informed by Hofstede's finding on the cultural dimension of masculinity, but also EU surveys questions on CC severeness and ideas on cultural differences presented by Linthout.

Hofstede found a relative great difference on this dimension for both countries. Germany was positioned much higher on the MAS index. The index, Hofstede stated correlated with the way (political) discourses are held. Moderate discourses are more frequently found within societies that score low on this dimension. The Netherlands are such a country. For Germany more adversarial discourses were predicted. From this information I expected the tone on CC dangers to be different, being more moderate in the Netherlands and more dramatic in Germany. This expectations, the data has shown can be supported. Regarding the way the materials speak about CC it indeed seems that dramatic, adversarial tones are characteristic

for the German material as all three frames are more prominent within the materials.

From the Eurobarometer survey 300 on CC severeness in Germany compared to the Netherlands a higher percentage of respondents considered CC to be a very serious issue. I considered this EU data to be interesting for the hypotheses on severeness and urgency, Weingart et al stated that the notion of climate catastrophe is a typical German term, which informed the hypothesis on apocalyptic framing. And indeed it for the CCE materials it was found that more often notions of apocalypse are used within the German materials. Though not being a clear cultural value it seems to be true that the climate catastrophe idea also influences CC education materials which are presented in a more dramatic tone in Germany compared to the Dutch materials.

Linthout's observation stating that Dutch people in general prefer moderate, non-exaggerating forms of communicating informed all three tone frames. Less urgency, less apocalyptic frames and rather moderate descriptions of CC were found among the Dutch material, which indicates that a cultural preference for matter of fact communication strategies (for the Netherlands) also informs these CC frames of urgency, severeness and the CC apocalypse.

From all four informing sources (Hofstede, EU survey, Linthout and Weingart et al) I would conclude that the communication preference is relevant also for the way CC is presented in the materials. As Hofstede but also Linthout have stated the Netherlands are characterized by a rather moderate way of communicating, while more adversarial or even fighting rhetoric might be typical for Germany. It is not this research's task to prove these statements on cultural differences, but what can be said is that by analyzing CC frames in the materials the idea becomes supported that a cultural preference for moderate versus more dramatic discourses influences how CC is presented in the materials.

### 4.3 Ignorance

Here the findings of frames on uncertainty, ambiguity and skepticism are presented. For the ambiguity frame a benefits are discussed separately. The three frames have in common that they can be ignored, which made them to be put together within this cluster.

#### Uncertainty frame

*What exactly will happen is hard to predict. (CIO )*  
*How climatic system exactly works is hard to understand (CMO)*  
*The consequences for humans and nature are not yet clear ( GLOBE)*

Climate scientists struggle with many uncertainties. When trying to predict future climate impacts

often probabilities are used. It is very hard for climate scientists to make clear cut statements and it was expected that the existing uncertainties might be communicated differently within the materials.

When analyzing the material I focused on how the existing uncertainties regarding CC were dealt with. These uncertainties can be ignored but also can be made explicit. In some cases uncertainties were mentioned implicitly. In most programs uncertainties were discussed (11/16). I distinguished between an implicit and explicitly uncertainty frame and it was found that the explicit approach to uncertainties was most prominent (9/11).

From the Dutch materials in five materials uncertainties were mentioned explicitly. From the German programs six out of eight do mention uncertainties, two out of these six however only implicitly. An implicit way of dealing with uncertainties is used at the programs of BMU and the WWF. They do not speak about uncertainties in a direct way but in the case of BMU present probable CC impacts. WWF Germany in a chapter on tipping points deals with uncertainties implicitly too.

Uncertainties were found to be related to either the CC impacts or the general working of the climatic system. WWF presents the climate sensitivity to be uncertain. CMO says that it is hard to understand how the climate system exactly works. Frequently within the Dutch materials uncertainties on CC consequences were mentioned.

There are no strong differences between countries in the frequency of use of the uncertainty frame, independent of an inclusion or exclusion of the implicit uncertainties. Uncertainties on impacts were found more often in the Dutch material, were four out of five times the uncertainty frame referred to CC impact, while uncertainties about the climatic system were more often referred to in the German material. Here three out of six uncertainty frames referred to the climate system as a whole.

If one looks to types of organizations it can be concluded that there is no difference in frame use between types of organizations. Three out of the four environmental NGOs discuss uncertainties, and from the global civic education organizations five out of six organizations use this frame.

Zooming in on the national branches of Greenpeace it is interesting to mention is that Greenpeace in the Netherlands does not mention uncertainties at all, while the GP GER does. The two WWF branches are more similar, as both of them use the uncertainties frame, though WWF in Germany does so only implicitly.

#### Ambiguity frame

*A warmer climate seems attractive at first sight, but... (OIKOS)*  
*We try to save the climate but kill the Orangutans (UFU)*  
*The Netherlands gives developing aid, but emits a lot (CIO)*  
*Emission trading is not enough as long as we keep on using polluting technologies (BPB)*  
*People ask politicians to act, but at the same time in Germany more cars were used (UFU)*

Similar to the way uncertainties are dealt with it was expected that ambiguities related to CC

issues are dealt with differently. One type of ambiguities is related to positive impacts. Some groups might benefit from CC. I therefore analyzed if those positive impacts or beneficiaries were mentioned within the material. Other types of ambiguities were expected to be found in the material too. How exactly they would look like was not anticipated.

The assumption that CC might be positive to some people or sectors was the only type of ambiguity that was thought of before. This type of ambiguity (see table 7, column BEN) was found in four Dutch and one German material. A reference to other types of ambiguities was found in ten programs (GER: 6, NL: 4).

From all 16 programs only a minority mentions benefits of CC or beneficiaries (5/16). Dealing with benefits explicitly was found to be more prevalent in the Netherlands. Mentioning beneficiaries of CC was done in only one German program (GW). Benefits were most often presented as sectoral benefits, especially referring to agriculture and tourism. Organizations that focus on nature and environment mentioned benefits for sorts too (GLOBE and WNF) Benefits for a certain country was referred to only in the Dutch material, and it was only the Netherlands that was mentioned to be a beneficiary country of CC. These beneficiary effects were always framed as timely and reduced to certain sectors. As it is the case with ambiguities the mentioned benefits are sometimes presented with the additional comment that they should be seen as restricted by sectors or by time in order to remain the message that CC is problematic.

The ambiguity that CC seems nice but that perception and reality do not fit, was mentioned three times. The OIKOS quote above exemplifies this kind of ambiguity. UFU and BMU also used similar ambiguities. Even four times the controversy on renewable energy sources was mentioned. Within the UFU material the link between bio fuels, climate and biodiversity is laid as the quote above indicates. Also DMB, BPB and CMO referred at controversies around energy. Another kind of ambiguity that was mentioned various time was the discrepancy between talking and walking which was also mentioned three times (UFU and GW).

Other types of ambiguities were found in the CMO material in which also the cooling effects of the climatic system mentioned. IVN stimulates pupils to think about the pros and cons of doing business in a climate friendly way while CIO and BPB (see quotes above) describe the ambiguity that is includes in the actions of Western countries.

The different types of ambiguities seem to be distributed without a clear pattern among countries and organizations. Exceptional here is the finding that the discrepancy between thinking and doing was found only within the German material. It is also surprising that the specific type of ambiguities (benefits) were found more often in the Netherlands.

It seems that ambiguities related to CC perceptions are also used strategically to get attention or to pose provocative questions that stimulate pupils to start thinking about the issue. This ambiguity is always resolved, using for instance the word "but" and in this way the main idea that CC is problematic remains the red threat throughout the material.



If considering ambiguities of all types (including benefits), the following can be concluded. To mentioning ambiguities, does not seem to be country related. For both countries no differences in the frequency of frame use was found (GER: 7, NL: 8).

The organizational influence seems to be relevant for this frame. The materials made by environmental NGOs seldom (2/8) mention ambiguities. WNF (the Dutch branch of WWF) referred to CC beneficiaries while GP in Germany discussed ambiguities. Ambiguities are more often mentioned in the materials made by global civic educational organizations (8/12).

*About the causes we do not have 100% proven certainty. Some argue that the current increase of temperature are natural. The very big majority argues that is caused by humans (BMU)  
There is a broad consensus on the idea that humans influence climatic system (BPB)  
Most consider humans to be responsible for the high amount of GHG's (CMO)  
Many scientists are convinced that the strong global warming of the earth is caused by human activities (PLAN)*

### Skepticism frame

Is climate change really happening? And if so: Is it something we should bother about? Skeptic voices on CC can be heard in the media but also in political debates. How does CCE material deal with skepticism on CC? Skepticism can be expressed in three ways: One way is to doubt that CC exists. The second and third way of expressing skepticism accepts that CC is occurring but doubts that it is a problem or that humans influence CC.

From all 16 programs in eight of them a skepticism frame was found. Five out of the eight Dutch materials mentioned CC skepticism, while just three out of eight German programs used this frame. BMU and GW referred several times to skeptic voices and therefore make use of this frame very much.

All GCE organizations somehow present skepticism on CC, while none of the four environmental NGOs presents skeptic voices on CC. A possible explanation of this striking difference in frame use might be that civic education by definition includes presenting different opposing voices on the issues discussed. Environmental NGOs by presenting CC skepticism might be afraid to weaken their message. At the other hand, during the interview with WWF (see section 4.9) it was said that within the material different views on CC are presented. A clear skepticism frame (as defined in this research) was not found during the analysis of the WWF material.

All three predicted types of skepticism were found back, however the third type of skepticism was found most frequently (7 times). Skepticism that CC is a problem was found three times, and only once a skeptic voice on the very existence of CC was presented.

Mostly skepticism was mentioned in an implicit way. This means that not the skeptic opinion itself is presented, but it is rather said that the opposite is accepted by a big majority. Implicitly this means that some people do think differently and thus are CC skeptics. Ways of

showing implicitly that some skepticism on CC exists are those expressions that refer to opinions people can have (BPB, CMO, PLAN).

Another way of dealing with CC skepticism implicitly is the use of words that express uncertainties. CMO does so twice for instance by arguing that CC is almost certainly the guilt of humans and stating that it seems that humans have a big influence on the climatic system. Four times pupils were given the opportunity to learn about skeptic voices during tasks that are included in the material, which can also be seen as an implicit skepticism frame. GW asks to investigate the different positions on anthropogenic CC effects, while CIO gives pupils the task to go into the neighbourhood to find out what people think about CC.

In two cases skepticism was mentioned very explicit, which means that the skeptic voice is really expressed. This form of skepticism was found in the material of BMU (see quote above). However immediately after the skeptic voice and opposing view was added.

### Overall assessment and interpretation (ignorance)

Table 7 summarizes the frames belonging to the ignorance cluster. The ambiguity frame is split up into ambiguities and benefits here.

The hypothesis stating that CC related uncertainties are more often found in NL than in GER is not corroborated. It seems however that an explicit use of uncertainties is slightly more prevalent among the Dutch programs while in the German material reference to the uncertainty frame was found in an implicit way. In general terms the frame was used often in the materials (11/16).

The hypothesis regarding the uncertainty frame was based on Hofstede's cultural dimension of uncertainties avoidance. For this hypothesis no other sources were found. The dimension was used; assuming that in Germany there is a cultural tendency to avoid uncertainties. Of course this tendency is also present in the Netherlands, but if one follows Hofstede it would be a weaker cultural tendency.

The hypothesis on the ambiguity frame stated that this frame is more often used in the Dutch material. No clear country differences regarding the ambiguity frame were found however. Ambiguities including benefits were found seven times in Germany and eight times in the Dutch material. In all materials are considered it can be said that the ambiguity frame is very frequently used (13/16).

The hypothesis was also based on Hofstede's uncertainties avoidance dimension. As it was said before for the uncertainties frame it is hard to say if the cultural dimension does not play a role for CC frames or if the preference for uncertainties avoidance is actually too similar to find frame differences. If the latter is true, it can be concluded that the cultural value to avoid uncertainties is relevant of the way climate related uncertainties are discussed within the materials. Both countries do not differ much in this cultural value, which explains the similar frame findings.



The hypothesis on the skepticism frame was corroborated by the data. It was found that skeptic voices are referred at more often within the Dutch material compared to the German materials. The hypothesis as the other frames within this cluster was also informed by Hofstede's cultural dimension on uncertainty avoidance. Additional to Hofstede also the Eurobarometer survey 300 informed the hypothesis. In a survey question investigating CC attitudes it was found that more Dutch respondents considered the seriousness of CC to be exaggerated (NL: 40 % versus GER 24 % agreement). I interpreted these findings to be possibly relevant for the skepticism frame. One of the three forms of CC skepticism expressed doubts on the problematic character of CC.

	UNC	AMB	BEN	SKEP
<b>BMU</b>	*	*		**2 **3
<b>BPB</b>	**	*		*3
<b>DMB</b>		*		
<b>GP GER</b>	**	*		
<b>GW</b>	**	*	*	*1*2*3
<b>UFU</b>		*		
<b>WWF</b>	*			
<b>VZ</b>	**			
<b>CIO</b>	**	*		*2
<b>CMO</b>	**	*	*	*3
<b>GP NL</b>				
<b>GLOBE</b>	**		*	*3
<b>IVN</b>		*		
<b>OIKOS</b>	**	*		*3
<b>PLAN</b>			*	*3
<b>WNF</b>	**		*	

As for all three frames (SKEP, UNC, AMB) Hofstede's ideas on cultural values of uncertainties avoidance were used, but only for the skepticism frame country difference were found, it is either possible that the cultural preference to deal with uncertainties is only relevant for the way skepticism is dealt with but not for the uncertainty and ambiguity frames. Another way of arguing is that the cultural values for both countries are similar and therefore also the frame findings. If the later is true, the connection between the cultural value and the skepticism frame should be further investigated in future researches.

table 7 overview frames from ignorance cluster

\* implicit/ \*\*explicit UNC and SKEP frame

1: skep CC existence

2: skep problematic character

3: skep anthropogenic influences

#### 4.4 Confidence

This cluster includes frames that deal with issues of trust. For the sake of analysis I distinguish between the institutional trust frame and the individual trust frame. The institutional trust frame can refer to markets or governments. Within the market trust frame a specific form of trust was also analysed: Ecological Modernization (EM).

Within the individual trust frame I analysed a specific form of trust the SSS frame, which was assumed to be more prominent in the Dutch material. The notion of mistrust was also analysed. I tried to find out if and how mistrust was presented in the materials. Mistrust can also either refer to institutions or individuals. As mistrust however was mainly found to be related to institutions I discuss the institutional mistrust frame here.

For this cluster a section on additional findings is included. The CCE material GLOBE was not included within this cluster.

### Institutional trust frame (ITF)

*More and more companies feel the need to work in a climate friendly way (IVN)  
As consumers we can protect our climate in daily life (VZ)  
The Dutch government has put an aim to emit less CO<sup>2</sup> (WNF)*

In almost all programs (13/15) the institutional trust frame was found. In six CCE materials both types of institutional trust were mentioned. Six times when mentioning the ITF, trust into governments was meant, while only once trust in markets was referred at. If both forms of institutional trust are compared to each other, the trust into governments is mentioned more often. Twelve materials refer to governments as trustworthy institutions while seven programs do use the market trust frame.

Trust into markets was found in five German programs and two Dutch programs. The two quotes by IVN and VZ show how markets or market related players are presented as trustworthy. Looking at the VZ quote it becomes clear that both trust in markets and individual actions (as consumers) can go together.

Seven German programs mentioned trust into governments while in five Dutch programs this frame was found. In both countries when speaking about institutional trust, it is rather governments than markets that are discussed. Politicians also are mentioned as they have to organize the big changes at structural level. (VZ). Here however it becomes clear that sometimes the notions of trust and responsibility are hard to be distinguished. Does VZ want to recall the political responsibilities or also express trust in this institution? That trust, responsibility and mistrust often are closely related. This becomes clear if one looks at the quote of WNF.

The branches of WWF and GP, in their way of approaching institutional trust, do not differ much from the six organizations that focus on global civic education. The total frequency of mentioned institutional trust does not differ, neither are there organization based differences in market or governmental trust.

### (Institutional) mistrust frame

*When it comes to climate protecting we can observe that politicians do different things that they have been promising before elections. (WWF)*

While analyzing the notions of mistrust it was mostly mistrust into institutions that was mentioned. This type of mistrust frame was found in nine out of 15 programs. In none of the programs mistrust against the government or market was formulated in a clear cut way. It was rather that certain elements or approaches within these institutions were mistrusted. Mostly (9/10) mistrust was formulated on political will or the scope of political actions, which

can be seen as mistrust towards governments or governmental solutions. The scope of current mitigation actions in the Netherlands is mistrusted by CIO, while WWF mistrusts the political will, arguing that for instance the Kyoto protocol does not go far enough. Mistrust into the market as institution was found only once (BPB). Here however the mistrust is rather formulated as an issue open to discussion. GP GER uses a general institutional mistrust frame as it says that politicians and business do not move or move to slow adding that you rather can push them a bit (see quote above)

It is astonishing that all environmental NGOs mention mistrust on institutions, while this is not the case for the global civic education organizations (ENV: 4/4 GCE 3/6). All four environmental NGOs framed institutional mistrust in terms of governments.

The appropriateness of SSS (mistrust on individuals' action) was found to be mistrusted twice (CIO & VZ). VZ, while focusing a lot on SSS, also shows signs of mistrust on the scope and will of individuals to protect the climate.

### Ecological Modernization Frame (EM)

*Working for a better climate also leads to positive effects for a company (IVN)  
It is free and it is good for the climate (VZ)*

This frame was said to be found if CC protection was presented as

something that is economically advantageous. I distinguished between an implicit and explicit use of the EM. In case that saving money or even gaining money by climate protection was mentioned I called this frame to be explicitly present. If benefits on economical level are formulated as a question I found the frame to be implicitly mentioned.

The EM frame was referred to in ten CCE materials. In six Dutch programs the notion of EM was found, while four German programs mentioned the EM frame. Four programs however do not present EM explicitly (as a truth) but rather approached this frame as something open to discussion (implicit). How much money can be saved with energy reduction measures is asked by CIO which is an example of the implicit use of this frame.

GP GER mentions the EM frame in terms of jobs that will be created if climate protection occurs. VZ clearly presents the EM frame in an explicit way as it is indicated by the quote above. CMO from all materials used the EM frame most frequently. Three times this frame was found. Car pooling and less use of fossil fuels are both presented as advantageous economically.

The two different types of organizations (ENV and GCE) do not differ in their way they present ecological and economical goals. Most of them use the ecological modernization frame, which means they present ecology and economy as win-win situation. (ENV: 4/5, GCE: 5/6).

### Small Scale Solution Frame (SSS)

*Much is possible at school when it comes to save energy (CIO)*  
*If you use light intelligently, you can reduce the greenhouse effect (WWF)*  
*We can do it, we have just start doing it, it should be fun (VZ)*

The SSS frame was found in eleven out of 15 programs, and was equally

distributed in both countries. The SSS frame often refers to what can be done at schools as the CIO shows. From the four programs that did not use the SSS frame, two however argue, that individuals can contribute to CC solutions via political activism (WWF and PLAN).

For the organizational type no strong difference in SSS frame use were found. Three out of four environmental NGOs presented small scale solutions, and four out of the six global civic education organizations did so.

### Additional findings

*Everybody, also children can actively influence CC (UFU)*  
*There is much technical know-how within the Netherlands and combined with its richness the country is able to adapt (PLAN)*

During the analysis additional notions of trust were found. The youth and children (thus the target group itself) was presented as trustworthy. The youth is trusted because of their surprising creative ideas is argued by IVN. Also UFU expresses trust into the target group of the material as shown by the quote above. NGOs were presented as trustworthy players within the CCE materials of WWF and GP NL. Science was mentioned in two German programs to be trustworthy too (GW and UFU).

Various times trust was mentioned also in regard to adaptive capacities. This however was done only in Dutch programs. Three Dutch programs explicitly mentioned trust into the adaptive capacities of the Netherlands. GP NL is one of the Dutch organizations that mention trust into adaptive capacities of the country. PLAN (see quote) also presents the adaptive capacities of the Netherlands as something trustworthy. Trust that the German government and industry is doing well is mentioned in the BMU program.

### Overall assessment and interpretation (confidence)

For the institutional trust frame and ecological modernization frame no hypotheses were developed, as the sources of cultural value studies contradicted each other. Institution trust frames were used in almost all materials. The frame is intensively discussed, though often in terms of governments as trusted institution or governmental solutions as trustworthy measures. Markets are more seldom discussed within the institutional trust frame.

Country differences in the way ecological and economy are presented were found. The ecological modernization frame is more frequently but also more explicitly used in the

Netherlands. I can not say anything on a probable underlying cultural value at stake for this frame.

The mistrust hypothesis stated that mistrust into institutions is more prevalent in Germany, while mistrust into individuals more often found within Dutch materials. Mistrust in institutions was not found to be more prominent in one country (GER: 5/8, NL: 4/8). Signs on mistrust on individual were almost not recognized. This shortage of data therefore does not allow any conclusions on this hypothesis.

Hofstede's cultural dimension masculinity-femininity together with the Eurobarometer survey 300 informed the two hypotheses on mistrust. According to Hofstede, attitudes toward institutions (and political establishments) tend to be negative in high MAS countries. On this cultural dimension (compared to the other three ones) the biggest differences between Germany and the Netherlands were found. The cultural value (general negative attitude toward institutions) seems not be influential on the way institutional mistrust is approached within the CC educational materials.

What has been found is that mistrust but also trust into institution mostly refers to the government but seldom on markets. Notwithstanding the country or organizational type there is a very strong tendency to refer to governments instead of markets when it comes to the question how institution should relate to CC. Trust and mistrust into the government as institutional actor can go along with each other. In all nine programs were mistrust on the government was formulated also the notion of institutional trust on governments was found.

The hypothesis that the SSS frame is more prevalent in the Netherlands is not corroborated by the data. The hypothesis assumed this frame to be more often found within the Dutch materials. The frame was however equally distributed among countries. The hypothesis was based on three sources: Hofstede's cultural dimension "Individualism-Collectivism" (IDV), the World Values Study (WVS) and Linthout (2006). All three sources indicated that the SSS frame might be more prominent in the Dutch material which however was not found to be the case. Hofstede found that the Netherlands score high on individualism. Germany is positioned some ranks lower. Following Hofstede argumentation individual freedom but also responsibilities are highly valued in high IDV countries. Linthout argues that due to the influences of Calvinism in the Netherlands focus on individual responsibility is very prominent. Though both, Hofstede and Linthout can be seen in one line, it can not clearly be said which cultural value might be relevant for the way educational materials approach individuals (their roles, capabilities, responsibilities in CC matters)

	ITF	SSS	EM	IMF
<b>BMU</b>	**	**		
<b>BPB</b>	**		*	**
<b>DMB</b>		*		
<b>GP GER</b>	**	**	**	*G
<b>GW</b>	**	*	*	
<b>UFU</b>	*G	*		*G
<b>WWF</b>	*G			*G
<b>VZ</b>	**	**	**	*G
<b>CIO</b>	*G	*		*G
<b>CMO</b>		*	**	
<b>GP NL</b>	*G	*	**	*G
<b>IVN</b>	*M		*	
<b>OIKOS</b>	*G	*	**	
<b>PLAN</b>	**		*	*G
<b>WNF</b>	*G	*	**	*G

Only within the German materials the “tragedy of the commons” was mentioned. This notion if applied to CC means that the atmosphere is a global common good, which however gets spoiled as all individuals (mis)use it by emitting too much CO<sup>2</sup>. Each individual alone would not do any harm, but the huge amount of users taken together produce a tragedy out of the situation. That this notion is only found within the German materials might indicating country differences, and future research might further research might add a CC frame that investigates how the question of collective action problems are discussed and framed. Table 8 indicated which how the different frames of the confidence cluster were found in the materials.

Table 8 overview cluster confidence (without GLOBE)

\*=if one form of institutional (mis)trust found, either market (M) or government (G) related

\*\*=if both forms of institutional (mis)trust found

\* = EM implicitly mentioned (e.g. as topic for discussion)

\*\* =EM explicitly mentioned

\*\* SSS =reference found to tragedy of the commons while referring to SSS frame

## 4.5 Division

This fourth cluster includes three different frames that have in common that they investigate how different CC interests and positions are dealt with. CC is a global issue but not everybody did cause it to the same extend, nor are impacts equally distributed. The drivers or impacts therefore might be presented to be divided differently among groups. The conflict and cooperation frames are also includes here, and they are ways of dealing with divisions.

### Divisive Frame

*This is unfair: They have been emitting less, but suffer more (GP GER)  
Those that caused the crisis do not suffer most by it (PLAN )  
Especially the developing countries will suffer, though they did not cause it (GW)  
CC lead to biggest problems in developing countries, they have less money to adapt (OIKOS)  
If you have money you can more easily adapt (PLAN)  
In developing countries adaptation is more difficult (WNF)  
Especially poor countries will suffer. They have no adaptive capacities (CMO)*

For the division frame it was analyzed which divisive line was drawn. This line can be drawn between CC actors but can also describe what exactly characterizes the division. Due to different perceptions and interests it is possible to emphasize the conflicts embedded in the CC debate, or to focus on cooperation. The conflict-and harmony frames express these different positions. All three frames, if found back are described in a more qualitative way here.

In four programs there were no signs of a divisive framing at all. Except from DMB all German programs make use of a divisive frame. Among the Dutch organizations five do so. The GLOBE material, except from describing impacts on nature does not discuss at drivers and solutions. A divisive framing would not fit the content of the program. IVN and DMB do not have a global dimension and rather approach CC from a local perspective. Both organizations do not use a divisive frame either. They both furthermore do not make use of the conflict nor cooperation frames.

The division between industrialized and developing countries (I/D) was mentioned in ten programs. Three of them more concretely in addition mentioned Germany or the Netherlands compared to developing countries. (GP GER, CIO, OIKOS). A division along socio-economic lines was also used frequently. Five programs mentioned the division between rich and poor people (R/P) or rich and poor countries. Six times the division between culprits and victims (C/V) was found. The three quotes above exemplify this divisive line. I have indicated the division between culprits and victims as well here, though a victimization frame will be discussed within the next cluster.

It was also investigated which reasons for a divisive frame were given. Some programs mention a division and explain this division due to different adaptive capacities. Other programs mainly mention the difference in emission rates or varying CC impacts or vulnerability. A division due to adaptive capacities was found in eight out of twelve programs. All Dutch programs that use a divisive frame also mention a division of adaptive capacities, which might indicate that adaptation to CC is more prevalent in the Dutch material, thus less mitigation preference is found among the Dutch materials.

In six programs a division due to different emission rates was recognized. Seven programs mention a division due to different CC impacts. A division due to different levels of vulnerability was also found in seven programs (see quote by PLAN). Twice a divisive line was also drawn on the issue of political interests, which was done by BPB and WWF. Both programs deal with climate justice, which might explain the focus this kind of division.

Regarding the type of organizations (ENV and GCE) no differences in the frequency and type of the division frame was found.



## Conflict frame

*At this moment there is a conflict between developing countries and industrial countries, the latter thinking only about them selves (OIKOS)  
Developing countries resist the call to stick to environmental legislation. They claim their right to development (GW)*

The conflict frame was found in ten programs. All but one German programs use such a frame, and UFU and BPB do so very strongly compared to the attention they give to the cooperation frame. Out of the eight Dutch programs five do not mention a conflict frame at all, though it must be admitted that two of them (CIO & PLAN) do refer to conflicting ideas on CC methodological level.

Conflicts are mostly mentioned to occur between world regions. Conflicting political interests (PI) between industrialized and developing countries are referred to by BPB and WWF. BPB presents blocks of interests that indicate potential conflicts. It is also admitted that conflicts of interests are unavoidable. Conflict are for instance on who should act first. (BPB) OIKOS (see quote) UFU and WWF mention the egoism of industrialized countries, which leads to conflicts.

The tension between climate protection and development, (DEV) is mentioned as reason for conflicts, as shown by the GW quote. Also VZ presents such a tension. Also conflicts between economic growth and climate protection presented by GW. Reference on conflicts on who should start (ST) with mitigation actions was found twice (BMU & BPB)

CMO and UFU speak about conflicts most explicitly. Both mention wars that might occur due to scarcity of resources. UFU refers to wars which might develop when energy resources get scarce. Also the increasing inequalities are mentioned by UFU.

The environmental organizations when using the conflict frame always refer to conflicts due to different political interests, while the six organizations dealing with global civil education (GCE) mention all types of conflicts that were described above.

## Cooperation frame

*All, also businesses are responsible for a healthy future (IVN)  
Rich countries should help developing countries to adapt to CC (CIO)  
Agreements between all countries are needed (PLAN)  
All countries should participate in mitigating action (WWF)  
All have to contribute, global problems require global solutions (BPB)*

In twelve out of 14 CCE materials the cooperation frame was recognized. The frame was not found in the materials of CMO and GW. It was

found that either cooperation at international or at sectoral level was mentioned. A reference to international cooperation (INT) was however found much more often. In only three materials sectoral cooperation was discussed. IVN for instance presents cooperation to be



necessary at sectoral level (see quote). Cooperation according to VZ is required between individuals, politics and business. Cooperation is often presented as desirable though not yet realized situation.

Concerning the type of organisations there are not differences in frame use between ENV- and GCE organisations. This is however not surprising as almost all organisations apply cooperation frame, and except of three, all organisations refer to international cooperation.

#### Additional finding

WNF as only program mentions also a divisive line between generations. Using a '*we versus them*' division refers to place and time, the latter being an example of intergenerational division. Another interesting division was used by VZ and PLAN. VZ distinguishes between luxury and survival emissions. PLAN draws divisive lines between gender and welfare level. Conflict and cooperation frames are not mutually exclusive but were often presented at the same time.

#### Overall assessment and interpretation (division)

For all three frames I have developed hypotheses that indicated an expected frame difference due to cultural values. One hypothesis stated that divisive framing is more prevalent in German CCE materials compared to the Dutch ones. The findings support this hypothesis though the differences found are not very strong. Seven out of eight German programs use divisive frames, but only five out of eight Dutch programs do so. The hypothesis was based on Linthout's book on cultural differences. He argued that friend-enemy divisions and a fighting rhetoric both are more prominent manes of communication in Germany. His findings are not scientifically proven which makes it hard to come up with clear statements on the influence of cultural values on the divisive frame. More research on this frame and the underlying cultural values should be done. A first indication that this research produced is that division in CC matters was mentioned more often in German materials. This finding could be due to a cultural preference for harmony and cooperation, which is often said to be a dominant value within the Dutch society.

Various reasons for conflicts were found, and it seems that conflict frame is more strongly pronounced in the German material, which was also predicted by the hypothesis on the conflict frame. In the German materials conflict is mentioned in seven programs while among the Dutch material only three used a conflict frame. The hypothesis on the conflict frame was based on one of Hofstede's cultural dimensions (Masculinity & Femininity) and also the non-scientific sources. On Hofstede's MAS dimension the biggest differences between both countries were found. As also huge differences in the conflict frame use were found within the CCE materials. This cultural dimension might therefore be seen influencing factor on the conflict frame. It might be the case that due to the preference for cooperation in low MAS countries divisive lines which might indicate conflicts are less often used, or even ignored.

The hypothesis on the cooperation frame, stating that notions of cooperation are characteristic for the Dutch material is not supported. It was expected that due to a cultural

preference for cooperation in low MAS countries the cooperation frame would be more prominently found within the Dutch materials. This expectation however is not supported by the findings.

	DIV		CONF	COOP
<b>BMU</b>	ID	AC ,IMP ,VUL	ST	INT
<b>BPB</b>	ID	AC ,IMP, INT	PI,ST	INT
<b>GP GER</b>	ID, CV	ER,IMP, VUL	PI	INT
<b>GW</b>	ID, CV, RP	ER,IMP, VUL	DEV	nm
<b>UFU</b>	RP	ER	PI, RES	INT
<b>WWF</b>	ID, CV	IMP, INT,VUL	PI	INT
<b>VZ</b>	ID	AC ,ER, VUL, OTH	DEV	SECT
<b>CIO</b>	ID,RP	AC ,ER	nm	INT
<b>CMO</b>	ID, CV	AC	RES	
<b>GP NL</b>				INT
<b>IVN</b>				SECT
<b>OIKOS</b>	ID, RP	AC ,IMP	PI	INT
<b>PLAN</b>	ID, CV, RP	AC ,ER,IMP ,VUL, OTH		INT
<b>WNF</b>	CV	AC, VUL, OTH	PI	INT, SECT

*ID= industrialized vs. developing countries*

*VC =victims vs. culprits*

*RP = rich vs. poor people/countries*

*AC =adaptive capacity*

*ER =emission rates*

*IMP = impacts*

*INT =interests*

*VUL = vulnerability*

*OTH =other*

*INT = international cooperation*

*SECT = sectoral cooperation*

Table 9 overview frames within cluster division (without DMB and GLOBE)

## 4.6 Morality

In this last cluster the victimization, guilt and moral frames were analysed. I investigated in how far victims of CC are mentioned, and which groups are victimized. Regarding the frame on guilt I tried to find out if blaming is used within the CCE materials. Regarding the moral frame it was investigated if CC was approached from a moral perspective, which means that topics such as fairness and justice were included in the CC presentations. For this frame I also analyzed if moralistic judgements were recognized in the materials. A moralistic approach in this research was defined as clear cut moral judgements that are provided. This could be for instance on the issue of good and bad actions or actors within the CC debate.

### Moral frame

*The strongest get the biggest piece of cake. Unfair, isn't it? (UFU)*

CC is approached from a moral perspective in six CCE materials. PLAN

makes use of a children rights approach, which also was interpreted as moral frame of CC. The resting five programs deal with justice and fairness. For three programs this is the main issue (CIO, OIKOS and BPB) while GW and WWF have a chapter that presents CC as moral issue.

CIO is about honest relationships between rich and poor countries in the context of CC. The Fair Play module aims at confronts pupils with global inequalities, without however giving clear moralistic judgements. The moral framing of CC is a strong component of the program; however no clear moral messages are presented. Pupils should discuss in how far things are fair or unfair. In an individualized way moral messages do come back, when for instance Jonathan is speaking.

The whole BPB material is about climate justice, thus a moral frame applies but no moralistic judgments are given. Blaming and guilt are important topics, however presented as questions. A moral frame is included in one chapter of the WWF program. The GW program deals with justice, and therefore also a moral framing was found. Moral frames were found in three Dutch materials and three German materials.

Moralistic judgements were found in five programs. Two of them however present these judgements in a personalized way, which means that the judgements are presented as opinion rather than a fact (CIO & OIKOS). The very explication moralistic statements were found within GP GER, UFU and VZ, all being German material developers.

GP GER clearly says that the current situation is unfair and also UFU judges on the current unfairness. VZ gives a moralistic statement on the division between luxury and necessary emissions. GP NL clearly states that the current situation is unfair. IVN does not want to use moralistic judgements but motivate pupils to ask (moral) questions on their own which was also emphasised during the interview (see section 4.9).

The global civic organisations use the moral frame to CC more frequently. (ENV: 1/4, GCE: 5/6). Statements clearly indicating a moralistic attitude were found seldom within the materials and it was not found that specific types of organisations make use of moralistic comments within their materials.

#### Guilt frame

*Who is the wretch? (BPB)*  
*Who are the CC sinners? (GW)*

This frame was said to be present if questions or answers on CC guilt and blame were found in the material. The frame applies if specific groups or humanity as a whole are called guilty or are blamed.

Mentioning the responsibility is not the same as blaming. Blaming involves a negative judgement too.

Notions of responsibility are mentioned in all programs, for instance by discussing actors responsible for CC. The guilt frame however is not found often within the analysed materials. In only three programs this frame was found. Within the CMO material guilt was a prominent notion. Humans are hold guilty for GHG increases and the question is posed what we could do to get rid of this feeling of guilt. BPB and GW also pose the question on who is to blame for CC as the quotes clearly indicate. The guilt frame was found in only few materials and the findings indicate that especially GCE organizations use this frame. (BPB, GW and CMO)

### Victimization frame

*That's why these countries expect financial and technological transfers (VZ)  
CC hurts people differently by CC. People that are most vulnerable are hit most (PLAN)*

I checked if the notion of a victim was present, thus somebody that has no room to act or is not able to control its surrounding. Also if solidarity with weak ones was mentioned this was defined as victimization.

The victimization frame was found in eleven CCE materials, six in Germany and five in the Netherlands. The division between victims and culprits was found in six programs (see also section 4.5). Obviously for these programs the victimization frame automatically applies. Victimization however also occurs without mentioning a divisive line between victims and culprits. This happened in five materials. Mostly developing countries or people that suffer from poverty are presented as victims of CC.

BPB for instances argues that some are powerless and not able to adapt to CC. GP GER presents certain groups as suffering inappropriately of the consequences of CC. WWF also mentions groups that suffer, though they are not responsible for CC. UFU recalls on the weak ones, that get a smaller piece of the cake, an expression in which powerlessness is recognized. Within the VZ material victimization also occurs, together with notions of powerlessness and dependency (see quote)

The notion of solidarity is very strong within the CIO material. Powerlessness comes also back within the OIKOS module. The victims are always those that did not produce CC or that suffer inappropriately of its consequences, without being able to cope with it. Developing countries or people in poverty are the main victims mentioned. WNF even speaks about victims that are not yet born.

The frame was found within the materials of environmental organisations but also in those materials developed by the global civic education organisations (ENV: 3 /4 and GCE: 6/6).

### Overall assessment and interpretation (morality)

Regarding the frames of victimization and morality no hypotheses were developed. Victimization occurs in most of the materials and is not related to a country or type of organization. Victimization seems to be linked to programs that also approach CC from a moral perspective or that use moralistic expressions.

Moral frames were found to be equally present in both countries. Moralistic statements, though merely used, were found only within German materials. Programs that chose to deal with moral aspects of CC (moral frame) tend to be not moralistic in their presentations. Moralistic standpoints have been found in programs that do not approach moral aspects of CC (GP GER, VZ, and UFU).

Guilt was found to be very few used. The three hypotheses on guilt can not be answered as

too few references to guilt were found. The very few programs that use a guilt frame might be an indication that this frame is not seen as an appropriate measure for educational materials.

	MOR	VICT	GUILT
<b>BMU</b>			
<b>BPB</b>	*	*	*
<b>DMB</b>			
<b>GP GER</b>	**	*	
<b>GW</b>	*	*	*
<b>UFU</b>	**	*	
<b>WWF</b>	*	*	
<b>VZ</b>	**	*	
<b>CIO</b>	*(**)	*	
<b>CMO</b>		*	*
<b>GLOBE</b>			
<b>GP NL</b>			
<b>IVN</b>			
<b>OIKOS</b>	*(**)	*	
<b>PLAN</b>	*	*	
<b>WNF</b>		*	

The hypothesis that this frame is more often used in German materials is hard to answer due to the little appearance of the frame. The organization using this frame all approach CC from a moral viewpoint, which might be an explaining factor for they use of notions of guilt and blame. Table 10 summarizes the findings for the three frames within this cluster for all 16 CCE materials.

Conclusions on cultural values for the frames within this cluster are hard to be taken. Only for the moral frame a weak difference in countries was found, as moralistic statements were found only within German materials. The findings however are too few in order to come up with conclusions on the influence of cultural values on the moral frame.

Table 10 Frames within cluster morality

\*moral frame

\*\*moralistic judgements

## 4.7 Level frame

*What would happened if they also strive at the same luxury as we do? (BPB)*

*A decoupling of our lifestyle from GHG emissions is needed (GW)*

*How can we save energy but still be mobile as usual? (UFU)*

*Many people cant even imaging not using a car (UFU)*

*In order to deal with CC fundamental change in our way of life and economy have to occur (WWF)*

*The lifestyle here produced poverty there. Rich countries produce and consume too much and this lifestyle pattern is the main driver behind CC (OIKOS)*

*This hunger for energy is also growing elsewhere, as people in developing countries desire what we have (GP GER)*

The quotes above are a representation of references to culture (cultural level), found in the materials. The motivation to also investigate on the level frame was due to my impression that very often a strong belief in technological improvements dominates CC debates. My own conviction is that also underlying cultural values have to change in order to solve CC. To me it seems that within the CC crisis there is also an underlying cultural crisis. We value things that

are destructive at the long run. I was very curious if cultural elements are part discussed in the materials, or if CC approached as problem that can be solved by technology improvements? The quotes above all related to the cultural level. This however should not be understood as that this level was more prominent than technological and institution approaches.

During the analysis I distinguished three levels that were inspired by Raskin (2002) and IPCC (2007) who distinguished between different CC drivers. Concerning CC drivers for the analysis I distinguished climate process drivers (CPD), proximate and ultimate drivers (PD and UD). In cases were only CPD are mentioned this is a clear indicating for the technological level.

One level (1) thus is the technological level. Here drivers and solutions are presented in terms of technology. Drivers can also be approached as being related to culture, and solutions can refer to this domain too, which I refer to cultural level (3). The second level refers to institutional solutions, such as market and governmental regulations. Of course CC drivers can also be discussed at institutional level (2).

Depending on which kind of driver is mentioned the solutions also differ in the level they deal with. The solution on CC can deal with technological, institutional and cultural solutions. Technical solution deal mainly with CPD and institutional solutions also deal with PD or even UD. A third level of solutions is situated in the realm of culture itself. Here solutions such a life style changes or an alternative cultural values can be thought of. In case behavioural changes in energy use are referred at this was seen as technological solution too.

Above various quotes were presented in which the cultural level was somehow discussed. This cultural level was however used seldom compared to references to other levels (1 and 2). Cultural elements such as lifestyle and consumerism were mentioned though often it was also in some materials stated that not much can be changed about it. If the cultural level was mentioned this was done mostly in terms of drivers, but much less often in terms of solutions. The majority of materials when speaking about solutions refer to either the technological or institutional level. Differences in frame use were not found, neither countries nor types of organizations. In the following paragraphs I try to justify for some materials the levels I have chosen before I summarize the findings.

OIKOS and WWF (see quotes) are most clearly in the way that they present CC drivers to be situated at a cultural level. Only once CC solutions at cultural level were discussed by WWF, speaking about necessary fundamental changes in our way of life which can both refer to ultimate or proximate drivers that need to be changes.

BPB mentions UD (see quote) and also the high living standard is presented as reason for high emission rates in industrialized countries. The BPB material discusses solutions mainly at institutional level. GP GER mentions lifestyle and desires (see quote), but it is also said that few can be done to changes theses patterns. Solutions are mainly proposed to be at technological and institutional level as it is the case for the BPB material.

UFU mentions energy hunger (see quote) which needs to be satisfied. Though energy hunger



refers to consumerism this is not criticized in itself. Renewable energies and saving energy are presented as solutions. Lifestyle is presented as something that is hard to be changes as the UFU quote also shows. CIO mentions all three kinds of drivers, referring at unsustainable production and consumption patterns. The solutions are at the technological level, were GHGs needed to be reduced with mainly technological and behavioural means.

GP NL mentioned energy hunger, which I interpreted as reference to culture and lifestyle. Institutional solutions are at the centre, but also technological solutions are discussed. OIKOS mentions UD next to the other kind of drivers. Lifestyle and also consumerism are discussed. The proposed solutions are mainly at the technological level.

#### Overall assessment and interpretation (LEV)

	LEV(driv)	LEV(sol.)
<b>BMU</b>	1	1/2
<b>BPB</b>	1/2/(3)	2
<b>DMB</b>	1	1
<b>GP GER</b>	1/2/ (3)	1/2
<b>GW</b>	1/2/3	1/2
<b>UFU</b>	1/ (3)	1
<b>WWF</b>	1/2/3	1/2/(3)
<b>VZ</b>	(3)	1
<b>CIO</b>	1/2/3	1
<b>CMO</b>	1/ (2)	1
<b>GP NL</b>	1/2/(3)	1/2
<b>IVN</b>	1/(3)	1/2
<b>OIKOS</b>	1/2/3	1
<b>PLAN</b>	1/2	1/2
<b>WNF</b>	1	1

There was no hypothesis developed on this frame. It was rather expected that the materials in general show a tendency to discuss technological or institutional levels more often than cultural levels. This assumption was found to be justified for the domain of solutions, where only once and implicitly (WWF) the cultural level was identified. Drivers were more often discussed in terms of culture, and ultimate drivers were mentioned four times in an explicit way. It seems that mentioning ultimate drivers is easier done than discussing the cultural level in terms of solutions. Between countries and organizations (ENV and GCE) no differences were found.

*Table 11 overview LEV frame (without GLOBE)*

*1= CPD or technological solutions*

*2=PD or institutional solutions*

*3=UD or solutions at cultural level*

*(1,2,3)= level only implicitly referred at*

#### 4.8 Mitigation preference frame

Exceptional for this frame is that it was not analyzed by looking at specific statements, but by assessing how frequently mitigation and adaptation were mentioned. The frame was operationalized using to types, the strong and weak version. If nothing at all was said on adaptation the strong MITPREF frame was said to be present. If more mitigating than adaptation issues were found in a material I speak about a weak MITPREF frame.

A preference for mitigation was found in nine programs, six in Germany and three times among the Dutch materials. In six out of these nine times mitigation is discussed to a higher extend than adaptation. It is not a strong preference for mitigation but rather a weak one. VZ

for instance due to the module chosen mainly discusses mitigation, however also refers to adaptive means.

Three materials (DMB, UFU and IVN) express very strong and explicit mitigation preference and these materials also already indicate in their titles or introduction texts that climate protection is their main focus.

If analyzing how the frame is used in the two different countries it seems that the mitigation preference frame is found more frequently within the German materials. In four German materials the frame was very strongly found, and in two materials the weak version was recognized. Among the Dutch materials IVN was the only material with a strong mitigating preference, while two materials (GP NL and WNF) used a weak version of the frame.

#### Overall assessment and interpretation (MITPREF)

	MITPREF
<b>BMU</b>	
<b>BPB</b>	*
<b>DMB</b>	**
<b>GP GER</b>	*
<b>GW</b>	
<b>UFU</b>	**
<b>WWF</b>	*
<b>VZ</b>	*
<b>CIO</b>	
<b>CMO</b>	
<b>GLOBE</b>	
<b>GP NL</b>	*
<b>IVN</b>	**
<b>OIKOS</b>	
<b>PLAN</b>	
<b>WNF</b>	*

Except from BPB the materials developed by global civic education organizations mention adaptation and thus have no preference for mitigation. The four environmental organizations at the other hand were all found to have a mitigation preference (weak version), which means that mitigation is discussed on a higher extend than adaptation.

Though there was no hypothesis developed on this frame based on cultural value studies, it was assumed that within the Dutch material mitigation and adaptation are presented in a more balances way, while in the German material mitigation is discussed to an higher extend than adaptation. This assumption is enforced by the data, but more research is needed in order to explain the underlying cultural values. One idea is that due to its geographical position the Netherlands are forced to deal with adaptation, especially due to sea level rise. This structural factor might have explanatory force too, which after all should not be forgetting when interpreting the results. It is never only cultural values that explain how certain frames are used. Structural forces also play a role, which however were not included in this research.

*Table 11 overview MITPREF*

*\*=weak mitigation preference*

*\*\*=strong mitigation preference*



## 4.9 Interviews

With four developers of CCE materials interviews were held. The main aim of these interviews was to enrich and reflect on the results of the content analysis. Furthermore organizational influences on the CC framings were aimed to be identified. The interviews were held at IVN (Groningen) and OIKOS in the Netherlands. With the German organizations Verbraucherzentrale Saxony and WWF also interviews were held. I discussed frames that were particularly present or absent compared to the other materials.

### Climate & Business (IVN Groningen)

The following frames were discussed with the interviewee Mr. Kees Siderius: Apocalypse, skepticism, trust and ecological modernization. An apocalyptic frame was not while analyzing the material, which according to Mr. Siderius was a conscious choice. The module "Klimaat en Bedrijf" belongs to the broader project "Schools for Sustainability" (Scholen voor Duurzaamheid - SvD). All projects are about the future and using doom scenarios such as an apocalyptic frame would be contra productive according to the organization. Pupils need to be motivated to think about their own future and negative or threatening images of the future should be avoided in order to not de-motivate them.

The skepticism frame was not found either. Mr. Siderius argues that the module tries not to give clear cut definitions on issues such as sustainability or CC. It is aimed to encourage pupils to make up their own mind. The material tries to highlighting societal uncertainties and ambiguities regarding CC. By using such an open approach and asking open questions a skeptic and critical attitude among the pupils is aimed to be strengthened. Skepticism on the human influences on CC and the problematic character of CC are not presented in the material. Encouraging a skeptic attitude does not depend on presenting CC skepticism, but also by letting pupils find out solutions and answers on their own.

Regarding the frame of trust I have found that companies are presented as trustworthy and as such institutional trust into markets was found, which was seldom found within the materials. The IVN material was the only one with a market trust frame, without also mentioning governmental trust. The module assumes that companies want to work in a more climate friendly way. This implies trust into companies already.

The very prominent frame of ecological modernization is linked to the content of the module too. The message that IVN wants to deliver with the module is that doing business and being climate friendly can go together. Mr. Siderius also mentioned that companies also have other motivations to participate than mere climate protection. They also try to get into contact with adolescents with the perspective of future employees. Regarding the question if too much trust into the market and more especially companies might lead to Green Washing processes within the project, Mr. Siderius argues that those companies that are willing to participate in an IVN project are quite climate ambitious already. If IVN however thinks that the company might be a bit more active in climate protection measures, other parties, such as environmental NGOs are asked to participate in the project in order to get a more balanced

representation of CC interests and perspectives.

It was astonishing that CC drivers are not discussed at all. Mr. Siderius agrees with this finding and argues that the future perspective of all SvD projects is crucial. When discussing CC the focus is laid on finding solutions. The teachers are seen to be responsible to make sure the class has sufficient background knowledge on CC before starting with an IVN project. Mr. Siderius also argued that CC at the moment (in the Netherlands) is prominent in the curricula and therefore IVN assumes that pupils do have sufficient CC knowledge on CC drivers.

### Climate & Sustainability (Oikos)

In cooperation with COS Noord-Holland OIKOS developed the lecture package Climate & Sustainability. This module is part of the Check it Out (CIO) concept. During the interview with Mrs. Irene Karssiens I discussed the frames: division, victimization and the moral frame.

The divisive frame was found to be very prominent in the material. This, according to Mr. Karssiens is very typical for the way OIKOS works. The developing organization with a religious background strongly focuses on global injustices and this is also reflected in the CCE material, where these injustices are illustrated with a divisive frame. A letter that is included in the material strongly shows this divisive frame. Connecting CC to aspects of global justice was a quite new approach when the module was developed in 2003. Currently this connection is much more often laid according to Mrs. Karssiens.

OIKOS tries not to use victimization as a mean to convince people to support international development cooperation. The organization rather aims to show global structures that lead to inequalities. Victimization was found during the content analysis, though OIKOS did not consciously chose to use such a frame.

What was consciously chosen to use, was the moral frame. OIKOS defines itself as an organization that tries to improve the world, and this vision also is found back in the material. The moral framing is very strong and is an expression of the mission of OIKOS.

### Everybody can protect the climate (German Consumer Association, Saxony)

During the interview with Mr. Jan Müller I have been discussing the following CC frames: Mitigation preference, small scale solutions (SSS), apocalypse and urgency. The material is characterized by a strong focus on individual responsibility and also a strong mitigation preference. There is nothing said on adaptation and according to Jan Müller, this was a conscious choice. If one starts developing a CCE material selections need to be made. VZ decided firstly to deal with mitigation. The campaign at which the material is embedded (*Für mich, für dich, fürs Klima*), shows a mitigation preference frame, which indeed also comes back in the module that has been analyzed. It is however not that adaptation does not play a role, neither does VZ wanted to de-emphasize adaptation to CC. If the campaign had received subsidies for a longer period of time a focus on adaptation would have been chosen next.

The main message of the module but also the whole campaign is to show that each individual should contribute to mitigation measures. The SSS frame is therefore very prominent within the material. The organization tries to show that own actions are crucial and significant if many people contribute.

The SSS action frame is very much connected to the ecological modernization frame which means that the solutions that can be done by individuals are often framed in economic terms too. People it is argued can save a lot of money while protecting the climate. During the interview Mr. Müller mentioned that VZ tries to frame CC in a way that the target groups pays attention. Often an economic frame works appropriate to reach this goal. Mentioning that saving or earning money with climate protection measures is often mentioned in the analyzed material and this framing was chosen consciously by VZ.

During the content analysis several signs of an urgency and apocalypse were recognized. These framings were not chosen consciously. VZ argues that it tries not make people afraid of CC, but rather show the reality of CC.

#### When does the climate tumble? (WWF Germany)

During the interview with Mrs. Birgit Eichmann four frames were discussed: Guilt, Morality, trust, mitigation preference and Small Scale Solutions (SSS). Though WWF as an organization has clear positions towards CC, it is aimed to communicate neutrally on CC within the material 'When does the climate tumbles?' Mrs. Eichmann emphasized that within the material distinct positions on CC should be presented, without moralistic judgments. The moral frame however is strongly presented in the material, which for a huge part deals with the issue of climate justice. Climate justice also strongly colours the WWF work on CC. In many projects that deal with CC aspects of justice are included. WWF tries to show global links and chains and while doing so, aspects of justice automatically appear.

The guilt frame was not found and Mrs. Eichmann argues that this was a conscious choice, as WWF tries to use a positive approach toward CC. Blaming others is avoided and rather positive examples are shown. Mrs. Eichmann also said that the current mainstream approach to education is characterized by a value-neutral approach, which would explain why the guilt frame was found to be used very seldom in other materials too.

During the analysis I have found that mistrust and trust on institution are strongly interlinked in the material. Especially when it comes to the role of politics both frames are found back. Mrs. Eichmann agrees with this finding and explains that WWF believes that CC solutions at political level are necessary and possible. Cooperation with these players is aimed at, though in the material no clear cooperation frame was found back. At the same time WWF sees itself to be a constant critic toward politicians and their CC ideas and actions. The institutional mistrust found in the material is a sign of this critical attitude toward politics but also industry and other market players.

The SSS frame, which was not found, was also discussed during the interview. What is expressed in the material is the idea that individuals can do something on CC via political activism. The interviewee agreed with this finding, and explained that there are many CCE

materials focusing on what individuals can do. However WWF did not aim to provide tips on what can be done on CC protection at individual level. Rather the way WWF does lobbying towards politics was aimed to be shown. The whole third part of the CCE material deals with political activism. The way WWF works, was also aimed to be shown.

#### 4.10 Summary of the research results

Within this last section of the empirical chapter I will summarize the findings from the material analysis and interviews. This section aims to give an overall picture of all findings and also summarizes which cultural values and organizational values were found to be relevant for CC frames. In the following section I present all frames and where possible use cultural values and preferences in order to explain frame differences but also similarities. In a second section I zoom in on organizational influences on the CC frames.

##### *Climate Change Frames (country analysis)*

The analysis of the material has considered 18 CC frames. For 12 of them country-based hypotheses were developed regarding cultural differences. For six frames the hypotheses were corroborated. For five frames, though differences due to different cultural values were assumed, it was found that they were similarly used in both countries. For the guilt frame its presence was too weak in order to come up with comparative statements.

For six frames no hypotheses were developed. For the frames EM and ITF literature on cultural differences indicated opposing directions, while for MITPREF, LEV, MOR and VICT no relevant literature was found. I will present my assumptions on possible cultural influences on these six frames here too.

	Frame <b>difference</b> GER & NL	Frame <b>similarity</b> GER & NL
Frame <b>with</b> hypothesis	APOC, SEV, URG CONF DIV SKEP	AMB, UNC COOP SSS MIST*
Frame <b>without</b> hypothesis	EM MITPREF MOR**	LEV ITF VICT MOR

In the following section I keep on using the same frame as before. I will summarize the frames and possible cultural influences on them, starting with the frames within the tone cluster, and proceeding with the clusters ignorance, confidence, division and morality.

Table 12 Overview frame similarities and differences (GER&NL) (without GUILT)

\*institutional mistrust only

\*\*moralistic frame

### Tone Cluster

For all three frames in the tone cluster (APOC, SEV & URG) it was expected that more dramatic-alarmist approaches to CC would be found in the German material. All three frames were found more frequently in German CCE materials. An apocalyptic framing was found in eight programs, while both the urgency and serenity frame were recognized in seven materials. For each frame this means that in about half of the materials make use of dramatic or alarmist tones are used while describing CC as general phenomena or the impacts of it. If all three frames are taken together the tone was found to be more dramatic in Germany (GER: 13/18, NL: 6/18). Also if the frames are considered separately for each of them it can be said that they appear more often within the German materials.

The hypothesis on the apocalyptic frame was based on Hofstede's cultural dimension (Masculinity & Femininity), Weingart et al (who found climate alarmism a typical German phenomenon) and Linthout, arguing that in the Netherlands there is a cultural preference for moderation. The URG and SEV frames were also based on the cultural dimension 'Masculinity & Femininity'. Furthermore these two frames were also inspired by EU survey findings, which however are hard to translate into general cultural values. The difference in tone found in the materials seems to be influenced by what I would call a cultural preference for a certain style of communication.

Following Hofstede moderate discourses are more frequently found within societies that score low on this dimension while more adversarial tones are found in countries with a high score on the cultural dimension. This goes along with Linthout's observation, stating that Dutch people in general prefer moderate, non-exaggerating forms of communicating. Both, Hofstede and Linthout can be used as explanation for the differences found in the tone. Weingart et al argued that the notion of climate catastrophe is a typical German term. This fact might also be influential on the way CC is presented in the materials. It is possible that either one or both, the communication preference (Hofstede and Linthout) but also the fact that CC is rather approached dramatically in Germany (Weingart et al) are an explanation that more dramatic CC tones were found in the German materials.

### Ignorance Cluster

It was expected that all three frames (UNC, SKEP and AMB) within the ignorance cluster would be more prominent in Dutch CCE materials. The hypothesis on the skepticism frame was corroborated while for the frames of uncertainties and ambiguity no clear differences between countries were found.

Uncertainties are not mentioned more often in the Dutch materials as assumed by the hypothesis. In both countries the frame is often used. Eleven out of the sixteen materials mentioned CC uncertainties. Either the impacts of CC were presented as uncertain, or the climatic system as a whole was said to be accompanied by uncertainties.

The hypothesis regarding the uncertainty frame was based on Hofstede's cultural dimension of uncertainties avoidance. The UAI difference between Germany and the Netherlands is a quite small difference, which might explain why the frame findings were similar for both countries. Furthermore compared to other countries GER and NL are situated on the lower

ranks on this dimension which might explain that uncertainties are often and explicit mentioned.

The AMB frame was found in most materials (13/16) and the frame was not found dominant in neither GER nor NL. The hypothesis on the ambiguity frame stated that this frame is more often used in the Dutch material which was not found to be true.

The hypothesis on the AMB frame was also based on Hofstede's uncertainties avoidance dimension. As argued before for the UNC frame, it is hard to say if this cultural dimension does not play a role for AMB frames, or if the preference for uncertainties avoidance is actually too similar, which explains why no frame differences were found. Again both countries score relatively low on this cultural dimension, which means their preference to avoid uncertainties is not very strong compared to other countries. As the AMB but also the UNC frame were found in many materials this latter explanation might be true

The skepticism frame was found in half of all materials (GER: 3 and NL 5). The hypothesis stating that the frame is more prominent within Dutch materials seems to be supported, though the difference is quite small. The type of skepticism mostly referred to was regarding to the human role on CC. The analysis on this frame furthermore revealed that the frame is rather used implicitly than explicitly.

As for all three frames (SKEP, UNC, AMB) Hofstede's cultural preference to avoid uncertainties was used, but only for the skepticism frame a (small) country difference were found, it is either possible that the cultural preference to deal with uncertainties is only relevant for the SKEP frame, but not for the uncertainty and ambiguity frames. At the other hand it might also be the case that the cultural preference to avoid uncertainties in both countries is relative low and similar which might explain the findings on AMB and UNC frame, which were often found in both countries.

#### Confidence cluster

Within the confidence cluster I analyzed four frames: ITF, MIST and EM and SSS. For two of them (ITF and EM) no hypotheses were developed in advance.

The ITF was used in almost all programs (13/15). Trust into governments was found more often than trust into markets. Often both forms of the ITF (market and government) were referred at within the same material. Regarding both countries no difference was found for this frame.

Though no hypothesis was developed I shortly present some ideas on cultural influences on this frame. If one looks back to the Power Distance Dimension described by Hofstede, at this dimension both countries have a low and similar score. A high score on this dimension correlates with a mistrust institutions such as governments. As for both countries a low score but also much institutional trust were found it might be assumed that the PDI dimension plays a role for the ITF. The assumption that in Germany due to more bureaucratic structures also more trust into governmental solutions is found might be also applicable for this frame, though it can not explain for frame similarities.



While analyzing the MIST frame it became clear that mainly the institutional mistrust frame was found. In nine materials I found a notion of mistrust into institutions. Notwithstanding the country there is a very strong tendency to refer to governments instead of markets when it comes to the question how institution should relate to CC. What was also found is that trust and mistrust into the government as institutional actor can go along with each other. The hypothesis on this frame assumed that mistrust into institutions would be more prevalent in GER while mistrust into individuals would be more prevalent in NL. Mistrust into institutions was found often but not specific for one country (GER: 5/8, NL: 4/8). Mistrust into individuals was merely mentioned.

The cultural dimension MAS (which informed the hypothesis on the MIST frames) and the correlated negative attitude toward institutions seem not be influential on the way institutional mistrust is approached within the CC educational materials.

The ecological modernization frame (EM) is more frequently but also more explicitly used in the Netherlands. For the ecological modernization frame no hypotheses were developed. Looking back on these sources the EU surveys (322 & 372) indicated that the frame would be stronger in GER. Also the survey no. 300 (question on attitudes on CC) gave an impression that the EM frame might be more strongly used in GER. This was however not found to be true.

The SSS frame was found in most of the material. It seems that while telling pupils about CC it is almost obvious to also tell them what they can do about it. The SSS frame was equally distributed among countries, which means the hypothesis that the SSS frame is more prevalent in the Netherlands is not corroborated.

The hypothesis on SSS was based on three sources: Hofstede's cultural dimension "Individualism-Collectivism" (IDV), the World Values Study (WVS) and Linthout (2006). All three sources indicated that the SSS frame might be more prominent in the Dutch material which however was not found to be the case. The cultural dimension IDV and the survival versus self-expression dimension of the WVS seem not to be linked to the SSS frame. I assume that the frame was so prominently found, because it is educational materials that were analyzed. Encouraging pupils, instead of making them feeling helpless might explain why SSS were so often referred at.

#### Division cluster

Divisive frames were found in most materials and also the conflict and cooperation frame was mentioned in the majority of materials. The hypothesis on division was corroborated, though not very strong. Seven out of eight German programs use divisive frames, but only five out of eight Dutch programs do so. It is assumed that a cultural preference for what Linthout called 'fighting rhetoric' is influential on this frame. More research on this frame and the underlying cultural values should be done. The fact that the divisive frame was found to be less prominent in the Dutch materials might also be explained by a cultural preference for harmony and cooperation, which Hofstede argues is typical for feminine societies. Most often a division was established between industrialized and developing countries, which often goes

along with victimization frame.

The conflict frame was found in many (10/14) materials. While analyzing the conflict frame, various reasons for conflicts were found, and it seems that conflict frame is more strongly pronounced in the German material, which was expected due to the cultural dimension Masculinity & Femininity. Within the German materials conflict is mentioned in seven programs while among the Dutch material only three used a conflict frame. It might also be the case that due to the preference for cooperation in low MAS countries, divisive lines which might indicate conflicts are less often used, or even ignored.

The hypothesis on the cooperation frame, stating that notions of cooperation are characteristic for the Dutch material is not supported. The frame however was found very often (12/14). It was expected that due to a cultural preference for cooperation in low MAS countries the cooperation frame would be more prominently found within the Dutch materials. This expectation however is not supported by the findings.

#### Morality cluster

Moral frames were found to be equally present in both countries. Moralistic statements however were found more often in Germany, though very few, which seems to be due to the educative approach that all materials have in common. No hypothesis was developed on this frame.

Regarding the frames of victimization no hypothesis was developed either. Victimization occurs in most of the materials and is not related to a country. The group of victims most often referred at were developing countries or poor people. Powerlessness but also notions of solidarity often accompanied the victimization frame.

Guilt was found to be very few used. The three hypotheses on guilt can not be answered as too few references to guilt were found. The very few programs that use a guilt frame might be an indication that this frame is not seen as an appropriate measure for educational materials.

Conclusions on cultural values influential on the frames within this cluster are hard to be taken. Only for the moral frame a weak difference in countries was found, as moralistic statements were found only within German materials. The findings however are too few in order to come up with conclusions on the influence of cultural values on the moral frame.

#### Level and mitigation preference frames

References to ultimate drivers were less prominent than references to climate process drivers and proximate drivers. Solutions never were found to be discussed in terms of cultural changes but rather at levels of institutions or technology. Concerning the LEV frame no country differences were found. There was no hypothesis developed on this frame.

Though there was no hypothesis developed, country differences were found. The MITPREF frame is stronger in Germany. Within the Dutch material mitigation and adaptation are presented in a rather balanced way, while in the German material mitigation is discussed to a



higher extend than adaptation. A possible explanation is that the Netherlands are more vulnerable to CC due to the fact that many part of the country are situated below sea level. Speaking about adaptation might be more obvious due to the daily dangers of CC. More research however needs to be done in order to come up with explanations for the frame differences. This structural factor might have explanatory force too, which after all should not be forgetting when interpreting the results. It is never only cultural values that explain how certain frames are used. Structural forces also play a role, which however were not included in this research.

### *Climate Change Frames (organization analysis)*

During the interview with developers it became clear that most frames which were discovered during the content analysis were in most cases consciously chosen by the organization. CC frames are used in some cases quite strategically in order to express interests and views of the developing organization. All four interviewees agreed that the CC frames are a kind of mirror of what the organization things to be important.

While analyzing the material I distinguished two types of organizations. Greenpeace and WWF in both countries were seen as environmental organizations, while BPB, GW, CIO, CMO, OIKOS and PLAN were considered to be organizations with a global focus (GCE).

Considering the type of organizations, environmental NGOs show a stronger tendency toward climate alarmism than the GCE organizations (ENV: 8/12, GCE: 7/18). All frames in the tone cluster (APOC, SEV and URG) were used more often by GCE than ENV organizations.

The types of organizations use the uncertainty frame similarly. A huge difference was found for the ambiguity frame, which is seldom mentioned by ENV but often by GCE organizations. Also organizational values seem to be at stake for the skepticism frame. All GCE organizations present skeptic frames on CC, but none of the ENV organizations does so.

For ITF no differences were found between ENV and GCE organizations. Interestingly it was found that all environmental NGOs mention mistrust into institutions. From the GCE organizations only three out of six do so. The way economic and ecological aims are presented, does not differ between the types of organisations. Most of them present the EM frame. Also regarding the SSS frame no differences were found between ENV and GCE organizations.

The frames division, conflict and cooperation were analyzed, focussing on ENV and GCE organizations. No differences however were found.

The global civic organisations use the moral frame to CC more frequently. (ENV: 1/4, GCE: 5/6). The guilt frame was found in only few materials, which all were developed by GCE organizations. Victimization is found often in all programs, and no difference in organization was found.

The different types of organizations discuss the levels of CC drivers and solutions in a similar way. No differences in frame use were found. For the mitigation preference frame interestingly it can be concluded that mainly ENV organizations use this frame.

## 5 **Discussion**

In the preceding chapter I presented the empirical findings. Before I present the conclusion in the sixth chapter I will discuss and evaluate the research's theoretical and methodological base here.

### 5.1 **Theoretical discussion**

#### Hofstede's cultural dimensions

As many hypotheses were informed by Hofstede's cultural dimensions I would like to discuss his theory here. Hofstede by some is criticized for presenting too generalizing conclusions on cultural difference between nations. When starting with the literature study I became aware of this fact and doubts appeared if using Hofstede's cultural dimensions would be appropriate. I decided to make use of his theory, though I would like to present some critical side notes here.

Hofstede received the data that make up for his cultural value indexes from surveys he conducted among IBM employees in different countries. He assumed that due to this homogeneous research population, national difference in cultural values become visible. What is however often criticized is that an international company such as IBM is also contextually embedded. A branch in India might attract totally different employees than the office in any European country. None withstanding this side note, I decided to use Hofstede's theory. While reading what Hofstede stated on country differences I very often intuitively was agreeing with his findings. I compared the cultural value indexes of Germany and the Netherlands and also reflected on the implications for different sectors that Hofstede describes. Based on my own experience of living in both countries I got the impression that the findings of Hofstede point into a direction that I also observe in daily life.

Furthermore for most hypotheses (see table 4) I found sources additional to Hofstede that also pointed into a similar direction (e.g. EU surveys). Hofstede himself very clearly warns that one should be careful in interpreting his findings on cultural dimensions. They are mean values for whole nations and never should be translated or reused at other levels. Arguing for instance that an individual avoids uncertainties more often due to his German nationality would be completely nonsense and Hofstede warns us to misinterpret or misuse his research. None withstanding the criticism I decided to use his theories and this decision after seeing the research results seems to be supported. From eleven hypotheses which I based on Hofstede's cultural dimensions six used during the research five were corroborated.

#### Linking theories to CC frames

The findings from cultural value studies and the Euro-barometer surveys both informed the hypotheses. The linking step between cultural value studies and the CC frames has some constraints however which I briefly will present here. Take for instance the question from the World Value Study (WVS): *I would agree to give part of my income if I were certain that the*

*money would be used to prevent environmental pollution.* I assumed that this statement is valuable for the small scale solution (SSS) frame. I established a link between this statement and the related survey data and the SSS frame, but other frames such as the institutional trust frame (ITF) could also have been connected to this statement. Regarding the EU surveys similar constraints were found. Findings on responsibility (EU survey, 300) were connected to the frames of mistrust and guilt, which indeed is a quite big step including a lot of own interpretation.

Some of the hypotheses were also based on popular literature on cultural differences. The book "Unknown Neighbours: Germany for the Dutch & the Netherlands for Germans" written by Linthout (2006) was used too (see table 4). As this is no scientific literature I tried to never base hypotheses on findings of this book alone. Exceptional is the hypothesis on the divisive frame. This hypothesis could also have been based on the masculinity dimension (MAS) of Hofstede, who argues that in the Netherlands cooperation is valued more strongly than in Germany. Division and polarization, if approached as opposite to cooperation therefore might be linked to the MAS index.

The concepts I used to research on cultural differences in CC frames were various. I used 18 different frames and for most of these frames hypotheses were developed. The way the hypotheses were informed by cultural theories and surveys, has some methodological constraints as I described above. I am however convinced that the chosen frames themselves are valuable already for a research on cultural influences on CC frames. Looking at the outcomes of the content analysis on CC frames one can see similarities and differences. In some cases they can be explained due to cultural values, while for other frames not such an explanation can be given yet. Some hypotheses were not corroborated, which is also a useful insight.

## 5.2 Methodological discussion

### Dealing with hypotheses

When developing the analytical framework, hypotheses on cultural influences on CC frames were developed. Before starting the analysis too there were too many hypotheses, and some of them were excluded. There was for instance a hypothesis on vulnerability or the precautionary principle. Not much indication of these frames was found back in the material, which supported the decisions to exclude them from further analysis. When preparing the analytical framework I expected that in the Netherlands more reference would be made to vulnerability, due to the country's geographical position, with huge parts below sea level. During the try out analysis I did not find many references to the notion of vulnerability. The hypothesis was left out. The precautionary principle was not found either. The frame itself but also the hypothesis connected to it, therefore were excluded. I did not adjust or delete hypothesis in case the results indicated a different direction.

### In depth interviews

From the 16 materials due to time constraints only with four organizations interviews were conducted. This amount of interviews is too small to come up with generalizing conclusion. Also the way these four organizations were selected was not fulfilling random selection criteria. I decided to contact IVN because I had a contact person already from the phase of material search. This argument is also true for WWF in Germany and Oikos.

The interviews gave an impression of organizational influences on the CC frames; however more research needs to be done. I case study approach for instance, in which vision and mission of the organizations are also taken in consideration might shed even more light on how the influence of CC due to organization culture looks like. What can be concluded from the interviews is that the frames recognized often were consciously chosen by organization. With very few exceptions the interviewees agreed on the findings on CC frames which I presented to them, which means the demarcation of CC frames and the system of codes worked out well.

### Level frame

The level frame was very hard to operationalize well. What I intended to do was to find out at which level drivers and solutions are discussed. It seemed however that the operationalization of drivers and solutions was done a bit too fuzzy. When coding the material I found it hard to discover the level of drivers and solutions. I tried to distinguish climate process drivers that were easy to be identified. However the proximate and ultimate drivers seemed harder to be separated. Solutions were mentioned at technological, institutional but also cultural level. Very often behaviour changes at individual level were mentioned as CC solutions, which I found hard to be included into the three levels that have been anticipated. Concerning the frames related to trust it seemed quite hard to separate notions or responsibility from notions of trust. Here a more clear demarcation was found to be necessary.

### Focus of analysis

I decided to compare CCE materials developed in two countries. The idea behind that choice was that at national level cultural influences might be at stake, informing CC frames. I have been defining culture as something that exists at various levels. Regional cultures were not taken into consideration in this research, though they might also play a role. In Germany, where education is organized at federal state level these regional influences might be even more prominent.

I have chosen countries to be compared to each other, as they are larger units at which difference might be at stake. It seemed interesting to me to compare two countries with different languages. One could ask: Why not choosing countries that are not so close to each other? I would like to explain that for the content analysis it seemed important to me to speak the different language well but at the same time be familiar with both countries. This led to the decision, to compare materials from the Netherlands and Germany. When reading the conclusions one should keep in mind that there are other factors too, that might influence the CC frames. It is never cultural values alone. Structural factors are also at stake, though they have been not investigated further more. Take for instance the dominant paradigms on education that are at stake. These might also play a role. Leading scientific finding within

educational sciences in each country could be included in further research too.

### Organizational influences

I have been using abbreviations for each program that were based on the organization that developed the material. Very often however various agents were included. There was a difference found between developers of the material and initiators who took initiative to develop a specific material. This is for instance the case for the WNF material that was developed by Code Name Future, but also the DMB module, wherein UfU played a developing role as well.

As only four interviews with developing organization were held, and often more than one organization seemed to be involved in the material development, it is hard to come up with a conclusion on organizational influences. This would be a very interesting future research topic. Concerning organizational influences in this research no companies were included. However during the material search it became clear that in many programs business and company financially contributed.

## 6 **Conclusions**

I investigated on how Climate Change (CC) is framed within educational materials and which role cultural values play on these frames. I analyzed Climate Change Education (CCE) materials in both countries and found similarities but also differences in the way CC is presented. Some of the differences I was able to explain with support of cultural values. I have described the outcomes of the research very detailed in chapter four. Here I will present the main findings only.

- This research has shown that CC is presented in a more dramatic tone in German materials. The Dutch materials in general use more moderate descriptions of CC dangers. The cultural dimension 'masculinity versus femininity' (Hofstede, 2001) was found to be influential on the tone in which CC is presented. Also the fact that the notion of a climate apocalypse is very influential in Germany might explain that the tone is much more alarmist in German CCE materials.
- Sceptic voices on CC are more often mentioned within Dutch materials, however the differences in not very strong. No differences were found in the way ambiguities and uncertainties on CC are dealt with. The cultural dimension 'uncertainty avoidances' either for both countries is too similar and therefore no frame differences were found, or does not play a role at all on the way CCE materials deal with CC uncertainties, skeptic voices and ambiguities.
- Trust is an interesting notion to be analyzed within CCE materials. It was found that trust into institutions is very often discussed, and mainly governments are presented as trustworthy actors to solve CC. AT the same time mistrust on governments was also found in many materials. The environmental NGOs mentioned mistrust into governments more often than organizations with a global focus.
- The idea that climate protection can go together with economic growth was frequently found in the materials, and even more often in Germany. Mostly this win-win situation is presented as matter of fact
- All materials discuss CC drivers and solutions, most of them however stay at the level of institutions or technology while doing so. A reference to underlying cultural values (the belief and addiction to economic growth) is seldom discussed.
- The German materials discuss CC more in terms of mitigation that adaptation. The finding that both are presented in a more balances way in Dutch materials is expected to be linked to non-cultural influences, such as the countries position below sea level.
- Both countries did not differ in the way cooperation is discussed. No differences were found for the way victimization and morality is dealt with.



By comparing types of organizations it was found that for some CC aspects (frames), organizational values play a role too. The interview with material developers have supported the assumption the organizations indeed influence the way CC is presented.

- Environmental organisations were found to make use of dramatic CC presentation more often than NGOs that have an international focus.
- Ambiguities on CC are not mentioned by environmental organisations. NGOs with a focus on development cooperation or climate justice do discuss ambiguities much more frequently. The same is true for the way both types of organisations deal with sceptic voices. None of the environmental organizations mentioned CC skepticism.
- For the mitigation preference frame it was found that mainly environmental organizations use this frame. They discuss mitigation more than adaptation.

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*With special thanks to the following organization for allowing me to use their CCE publications free of charge.*

- *CMO Nijmegen,*
- *IVN Consulentschap Groningen*
- *Stichting Oikos*
- *Plan Nederland*
- *WWF GERMANY*
- *Verbraucherzentrale Sachsen*

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Plan Nederland

Make the Link: Climate exChange

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Verbraucherzentrale Bundesverband (2011)

Klimabildungsordner

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WNF Nederland & Code Name Future

Tropisch Nederland

[https://www.wnf.nl/nl/wat\\_wnf\\_doet/thema\\_s/klimaat](https://www.wnf.nl/nl/wat_wnf_doet/thema_s/klimaat) (for information on CC)

[http://www.wnf.nl/nl/home/scholen/docenten\\_middelbaar\\_onderwijs](http://www.wnf.nl/nl/home/scholen/docenten_middelbaar_onderwijs) (for in log codes material)

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## **Appendixes**

### **Overview of appendixes**

- Appendix A Excluded programs
- Appendix B CCE materials that has been analyzed partly
- Appendix C System of codes
- Appendix D Interview Guide
- Appendix E Cultural map from World Value Study
- Appendix F CCE materials, material developers and material abbreviations



## Appendix A: Excluded programs

Many CCE programs did not fit into my selection and were not taken into further consideration. Sometimes only one criteria did not fit, while in other cases even two criteria did not apply. Not all excluded programs will be mentioned but rather some examples will be given to make clear how and way the selection was done.

### Aarde in Zicht

This Dutch initiative is based on the Earth Charter, without treating climate change as main topic. Further more it targets primary schools.

### De knop om

This educational material, developed by the environmental center "*Het groene Wiel*" is also an example where CC is not the main focus, though often being mentioned.

### Wetterküche

The German Climate Institute in Potsdam developed an exposition on CC for secondary schools. Written material for content analysis was not found, which led to the inclusion of this program.

### Klimawerkstatt

Is an example of CCE material that would have fit the criteria main focus and age group. However it is targeting adolescents that follow professional education. Though they might be still below 18 years this program has been excluded as it is not targeting secondary schools.

### Klarkommen mit dem Klimawandel

The provincial ministry of climate protection, environment, agriculture, and nature and consumer protection in the state of *Nordrhein-Westphalen* developed CCE materials for secondary schools. This material was excluded due to time constraints. Its main focus is secondary schools and it is on CC only. However the material is so broad, that a detailed analysis would not have fit the time available for analysis.

## Appendix B: CCE materials that has been analyzed part

In nine of the 16 materials not the entire program was analyzed, but a selection was made. CC for instance was found to be just one out of several issue that were touched. Often CC for instance was dealt with as part of a broader topic, such as mobility or sustainability. Often within one and the same material parts for teachers and pupils were included, that concerning the CC framings seems to be quite similar. If this was the case the material for pupils was analyzed only. In the following table I present each of the 16 programs and illustrate which parts of each program were analyzed.

BMU: In this material only the part for pupils was analyzed. I analyzed the following three chapters

- *Patient Weltklima: Welche Folgen hat der Klimawandel?*
- *Woher kommt die dicke Luft: Co2 – Emissionen und die Verursacher*
- *Wer rettet die Welt: Klimaschutz und Klimapolitik in Deutschland und weltweit*

DMB: the whole brochure was analyzed, except from chapter two, dealing with energy use at home only. (*Der Energieverbrauch in unserer Wohnung*)

GLOBE: both parts, the guidelines for teachers and the material for pupils was analyzed.

- *Docentenhandleiding (Havo/vwo onderbouw)*
- *Werkbladen voor leerlingen (Havo/vwo onderbouw)*

GP NL: On the website for kids two lecture packages were found which have been analyzed. Also one chapter of a booklet on CC was taken into consideration.

- *Lecture material: Klimaatverandering? Gedragverandering!*
- *information material: Energie-Vuil of schon?*  
[www.greenpeacekids.nl/docs/GRP7004\\_info\\_klima\\_energie.pdf](http://www.greenpeacekids.nl/docs/GRP7004_info_klima_energie.pdf)
- *Alles over Greenpeace: chapter: Pindakaas en Energie*

GP GER: All section of CC information on the websites for children and adolescents were analyzed.

- *Klima, Klimawandel, Klimaschutz Klimaschutz kann jeder*  
(<http://kids.greenpeace.de/taxonomy/term/9?type=knowledge>)
- *Website: <http://www.greenpeace-jugend.de/klima> (all sections)*

OIKOS FAIR PLAY: the whole module, except from chapter two, which deals with the methodological background has been analyzed.

PLAN: This material consists out of a part for teachers and pupils. It is made up of an introduction and seven modules. For the analysis the introducing texts for teachers and pupils

were analyzed. Furthermore the guidelines for the modules 1-5 were considered during the analysis.

- *Achtergrond informatie over klimaatverandering voor de leerlingen*
- *Introductie voor docenten*
- *Docentenhandleiding havo/vwo Modules 1-5*

UFU: This is a case where the main focus is not CC, but CC is still very prominent within the material. The UFU booklet is on mobility, but three chapters are on CC, and were analyzed next to the introduction.

- *Einfuehrung*
- *Warum sollte man Energie sparen*
- *Was ist der Klimawandel*
- *Projekt: Klimaretter auf Achse*

VZ: The whole collection of materials consists out of seven modules. I decided to analyze on of these modules and the introduction on CC.

- *Klima schuetzen kann jeder*
- *Posteraustellung mit Einleitung*
- *Hintergrundinformationen Globaler Klimawandel: Klimawandel und Treibhauseffect*

WNF: The web based material "*Tropisch Nederland*" developed by Code Name Future was analyzed. The links made to the WNF site were also taken into consideration.

## Appendix C: System of codes

### Codes Drivers

D-CP	climate process drivers
D-P	proximate socio-economical drivers
D-U	ultimate socio-economical drivers

### Codes Drivers/Responsibility

D-A	drivers that have to do with individuals (agency)
D-S	drivers that have to do with collectivities (structure)

### Codes Impacts

I-level	level of impacts: local, regional, national, global
I-geogif	impacts are linked to specific regions (Developing countries, nations)
I-sect	if impacts are related to certain sectors: health, security, transport etc.
I-pos	positive impacts
I-B	beneficiaries of CC = those that enjoy positive impacts

### Codes Solutions

S-ADAP	adaption
S-MITIG	mitigation
S-tech	technological changes
S-cult	cultural changes
S-inst	institutional changes (market or governance)
S-ind	solutions at individual level
SSS	small scale solution (easy and at individual level)

### Codes Trust

T-mar	trust into markets
T-gov	trust government
T-EM	trust ecological modernization
T-alt	trust into other institutional actors (NGOs etc.)
T-ind	trust that SSS are sufficient
MT	mistrust
MT-mar	mistrust into markets
MT-gov	mistrust into governments
M-alt	mistrust into other institutional actors (NGOs etc)

### Other codes

CONF	conflicting interests mentioned
------	---------------------------------

COOP	cooperation mentioned, needed
SKEP	are climate sceptics given a voice?
APOC	apocalyptic frame used
DIV	divisive frame used
MOR	moral frame used, or moral judgments
AMB	ambiguities mentioned, some might benefit, while other suffer etc
SEV	notions of danger found
URG	notions of urgency found

## **Appendix D: Interview Guide**

### **1 Introduction**

my background  
research aim (CCE in NL and Germany, comparative, focus on culture)  
research methodology (text analysis and interviews with program developers)  
reasons to chose your organization  
time frame of the interview (one hour approx.)  
any questions

I have chosen (title of the material) for my research. I was reading it with a certain lens (focus on certain frames). I would like to discuss with you my findings. But before I would like to ask some more general questions.

### **2 Background interviewee**

name contact person if not yet known  
function within organization  
relation with material under investigation

### **3 Background organization**

How is CC approached within the organization?  
*(main topic, linked to other topics)*  
Which approach does the organization have on education?  
*(formal, informal, target groups)*

### **4 CCE material**

Could you briefly describe the programs main target in your own words?  
Which people/institutions contributed while the material was developed?  
What was the underlying motivations to start with its development?  
Is this motivation also influenced by other parties, financiers.  
Did they influence the project in other ways?

### **5 Discussion of chosen frames**

*The following question related to the material and how CC is presented. During my analysis I found that the following topics were characteristic for the program compared to others. I present three or four dominant frames (see next appendix) and for each of the frames ask the following question.*

Do you agree with this frame presentation?  
Do you think this is typical for (sponsor / target group / organization) or is it rather typical for this program?

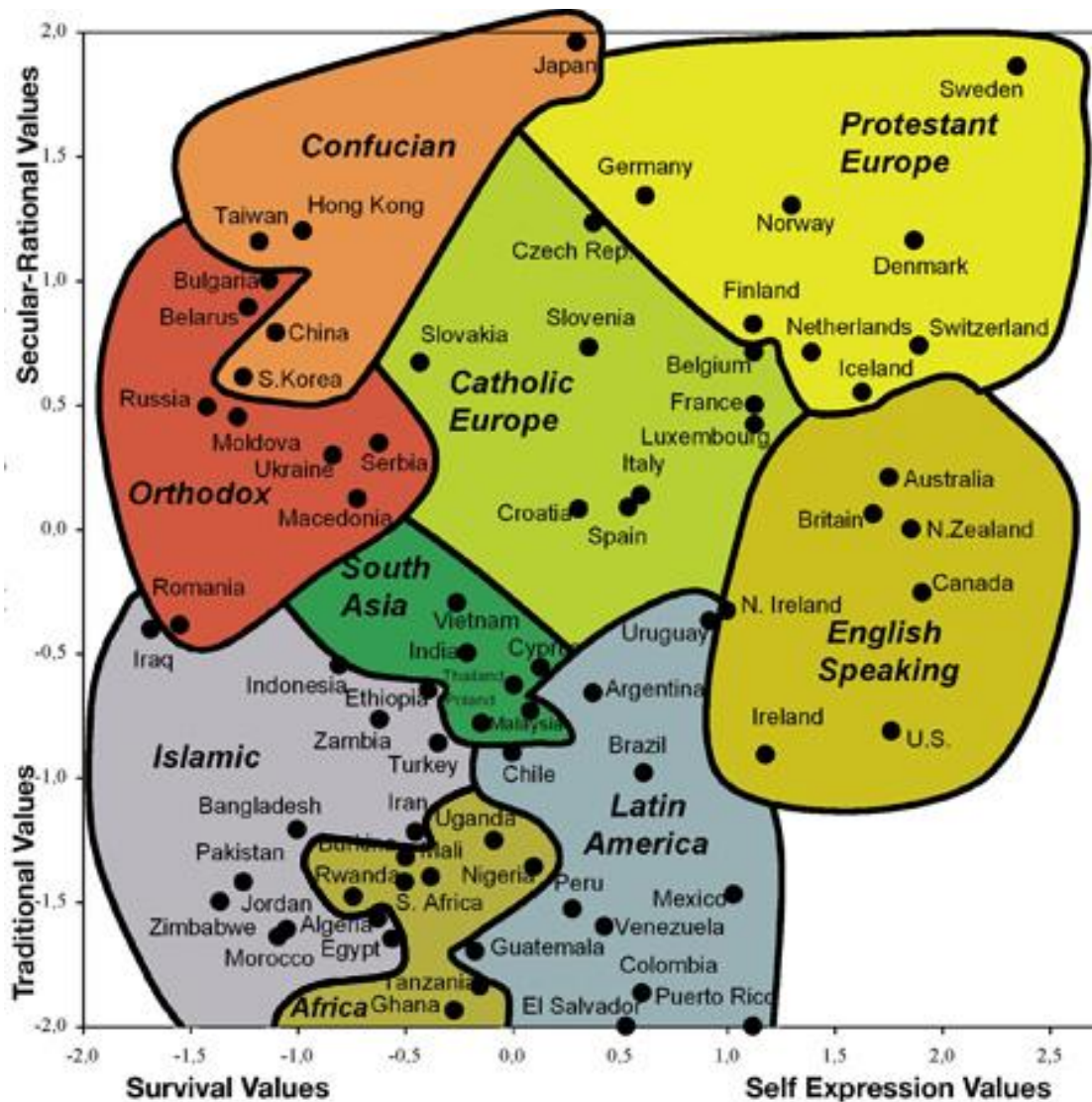
If you would work for another target group, would you choose differently? why?  
If you listen to this presentation of the material would you have some comments?  
Have you been in contact with educators or educational materials in other organizations or countries?  
If you think of material developed in the Netherlands or Germany, would you expect to be differences? Which differences? Why?

## **6 Final remarks**

Do you have any remarks etc?  
Would you like to receive the interview report?  
Do you agree if your name is mentioned in the research report?  
Thank you!



**Appendix E: Cultural map by WVS**



**Appendix F: CCE materials, material developers and material abbreviations**

Title CCE material	Developer(s)	
De Natuurkalender: Het klimaat verandert en de natuur doet mee, heb je het al gemerkt?	SME Advies WUR	GLOBE
Der Globale Klimawandel: Allgemeine Fragen	German Watch	GW
Draaiboek Bedrijf en Klimaat: Jongeren adviseren bedrijven	IVN Groningen	IVN
Fachseminar: Wann kippt das Klima?	WWF	WWF
Fair Play: Verhalend ontwerp over klimaatverandering en energiebesparing	OIKOS COS Noord-Holland	CIO
Jij en Klimaat: Een informatie pakket voor een werkstuk of spreekbeurt	CMO	CMO
Kleines Handbuch fuer Klimaretter auf Achse, und solche, die es werden wollen	UfU	UFU
Klimaatverandering en Duurzaamheid	OIKOS COS Noord-Holland	OIKOS
Klimabildungsordner: Klima schützen kann jeder (Unterrichtseinheit)	VzBv	VZ
Klimagerechtigkeit	BbB	BPB
Klimaschutz und Klimapolitik: Materialien für Bildung und Information	BMU	BMU
Klimaschutz und Wohnen: Schulpaket für die 5. und 6. Klasse	Deutscher Mieterbund UfU	DMB
Make the Link: Climate exChange	Plan Netherlands	PLAN
Tropisch Nederland	WNF	WNF
Website <i>Infobrief: Klimaatverandering? Gedragverandering!</i> <i>Infobrief: Energie: Vuil of schoon?</i> <i>Booklet: Actie-overleg-onderzoek: alles over Greenpeace</i>	Greenpeace Netherlands	GP NL
Website <i>www.kids.greenpeace.de</i>	Greenpeace Germany	GP GER