CITY UNIVERSITY LONDON

Department of Journalism

Global Issue, Global Coverage?

How climate change is reported in African countries and countries in the Global North with regard to national issues and international relations

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Declaration

I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any other education institution.

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Abstract

This research investigates how the global challenge of climate change is portrayed in five African countries, Ghana, Kenya, Namibia, Nigeria, and South Africa, along with Germany, the UK, and the US. Several studies have investigated climate change reporting; this research adds to the literature by focusing on a comparative analysis of media coverage and including questions of historic responsibility and international relations.

Following an emerging trend of diversification, this thesis contributes to a growing interest in media coverage of countries in the Global South, especially Africa. And while this study cannot account for an entire continent, by "reach[ing] generalised conclusions about 'the news coverage of Africa'" (Bunce, Franks & Paterson 2017: 8), the countries selected represent a range of economy sizes, and geographic areas, as well as varying contributions and vulnerabilities to the impacts of climate change.

The overarching question guiding this research is: How do the different countries report climate change in comparison to each other, and with regard to international dynamics? From this, the project investigates three sets of more nuanced research questions diving deeper into the analysis of climate change reporting and the influence of structural or content-related issues on the reporting. The thesis draws on sociological approaches to journalism studies as well as postcolonial perspectives. It combines a quantitative content analysis of 1,348 news articles with 18 semi-structured interviews with environmental journalists to highlight the different viewpoints and experiences as a lens on global debates.

The study finds that to a large extent climate change reporting demonstrates a strong national and sometimes even local focus, while covering an issue of global scale. Contradicting the familiar 'Africa is a country' trope, the research reveals the extent to which climate change reporting in Africa covers a global issue but is reported through a particular national lens of each country, led by the common news values of relevance and proximity. International (power) relations are mostly only reproduced indirectly through a conscious or unconscious focus on specific voices and regions. Additionally, the distinction between 'active' countries who contribute to the rising greenhouse gas emissions and 'passive' countries that are vulnerable to the impacts of climate change is no longer a reflection of the media coverage. Instead, the simplified classification does not do justice to the complex world that we live in today.

Overall, the thesis contributes to the emerging discussion of approaching climate journalism from a critical perspective and relating it to international (power) structures. This approach is not limited to the analysis of climate change reporting but can be applied to other issues, as well.

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1. Introduction

1.1. Focus of this study

> "Climate change breaks down many of our constructed boundaries. It crosses borders and blurs facts with opinions, experts with laymen, and development aid with business opportunities. It recharges old concepts, challenges institutional arrangements, and calls for new ideas and solutions."
> (Kunelius & Eide 2012: 266)

Climate change is a global issue. In September 2018, Secretary-General of the United Nations (UN) António Guterres referred to climate disruption, environmental pollution, and increasing loss of biodiversity as "the defining issue[s] of our time" (UN 2018). In one of the most recent reports, the Intergovernmental Panel on Climate Change (IPCC) stated that "urgent action is needed" and "unless there are immediate and deep emissions reductions across all sectors, limiting global warming to 1.5°C will be beyond reach" (IPCC 2023: v). However, this sense of urgency and general knowledge of climate change cannot always be obtained through direct experience and obviously differs dramatically within different ecosystems throughout the globe. Changes in climatic conditions stretch over long periods of time with varying impacts in different parts of the world. Climatologists today are still engaged in the difficult task of researching the complex relations between the biosphere and the climate. Complexity lies in the scientific debate around earth systems, the 'natural' condition of the biosphere, and the possible effects of anthropogenic influence such as deforestation, chemical pollution, and water (mis-) management.

This study does not focus on climate science, but on its representation in the media. Journalists can translate these complex realities into news pieces comprehensible for a wider audience and thus present a central source of information about climate change. This also entails that journalists need to show "how it [climate change] is intertwined with other areas from business to politics, so they can help people understand the realities of climate change and how we might respond to them" (Reuters Institute 2021). There is no uniform approach to a highly diverse issue.

Within the debates over the nature of the effects and possible solutions and mitigation strategies, media discourses can play an important role not only in framing climate change as a scientific, political, social, or economic issue, but also in giving a voice to specific people or institutions while excluding others. When the UN held its first environment conference in Stockholm in 1972, climate change barely registered on the agenda centring "on issues such as

chemical pollution, atomic bomb testing and whaling" (BBC 2013). Then, in 1990, the IPCC published its First Assessment Report (ibid.). Previously, human contribution to climate change was already referenced in mainstream media in the 1950s. An article written by Waldemar Kaempffert (1956) for *The New York Times* was among the earliest references to climate change in mainstream media. In the following three decades, anthropogenic climate change was covered rather sparsely by the media (Boykoff & Roberts 2007; see section 3.3.2.1. for more details). Generally speaking, climate change presents a challenge for established journalistic practices and routines. It does not fit with common journalistic news values because it exceeds temporal and spatial boundaries. Yet, the framing of media coverage largely determines which aspects of the story are emphasised and which are left out.

Journalism presents an "'interpretative system' of modern societies" (Schmidt, Ivanova & Schäfer 2013: 1233) where issues relating to climate change can be discussed. For this reason, it is crucial to investigate regional trends and how global issues are communicated through journalistic input. This study contributes to the field of research by interrogating how climate change is presented on online news sites in different countries and how underlying international dynamics influence the coverage. Climate change has not been a 'neutral' scientific issue for a long time; it is connected to global conflicts about responsibility, development, and dependency. Thus, international dynamics and relations – partly based on colonial exploitation – need to be considered when analysing climate change reporting.

The African continent is disproportionately impacted by the climate crisis, yet within the international research field of climate communication, scholarly attention on this region remains scant compared to the Global North, particularly the Anglosphere (Schäfer & Schlichting 2014; Schäfer & Painter 2020; Comfort & Park 2018). This study reports on research which seeks to "properly grasp the varying understandings of, and perspectives on, climate change that exist around the globe" (Schäfer & Schlichting 2014: 153f.) by analysing the coverage of climate change in five African countries: Ghana, Kenya, Namibia, Nigeria, and South Africa, in addition to the UK, Germany, and the US. The research revolves around questions such as, how do selected countries report climate change with regard to international dynamics? Which structural or content-related issues influence the reporting? And: How are international power relations (re)produced through media discourse about climate change?

This thesis draws on the theories of news values and framing to study how climate change is reported in different national contexts. Additionally, it gives a new perspective and looks at the connection between postcolonial research and journalism studies since climate change itself presents an issue of global capacity. Here, the project turns to the (historically

grown) structures that potentially influence the journalistic coverage. The study focuses upon empirical analysis instead of theoretical discussion. The contribution of this thesis thus is twofold: The results are useful to increase scholarly understanding of climate change reporting in different national contexts while moving beyond the familiar 'Africa is a country' trope (Bunce, Franks & Paterson 2017). Additionally, the research not only looks at journalistic output, but examines if and how international relations influence the reporting, and thereby contributes to raising awareness for an international, postcolonial-critical angle on news production. The research field of climate communication is deeply embedded within international structures, historic and moral responsibilities, emerging economies, and different civil societies. This project highlights these connections and combines the fields of climate communication – which is part of the field of science communication – with a critical perspective on international, postcolonial structures. The following section presents the research questions and gives an overview of the chapters to better understand the approach taken in the study.

1.2. Research questions and thesis structure

This project investigates the comparative coverage of climate change between countries in the Global North with the reporting in African countries which are part of the Global South. The concepts of the Global North and the Global South will be explained in more detail in the theory chapter (section 4.2.). This project focuses on the reporting of climate change in five African countries – Ghana, Namibia, Nigeria, Kenya, and South Africa – as well as in the UK, Germany, and the US using the concepts of news values and frames. The countries and regions are compared without one country or region providing the norms for an ideal way of reporting climate change. The project aims to find out how the global challenge of climate change is communicated in African countries that are among the most vulnerable to the impacts of climate change in contrast to three of the historically top contributors to greenhouse gas emissions, which issues occur and how underlying international dynamics influence the reporting (Tiseo 2023). The general, overarching question guiding this research is:

> *How do the selected countries report climate change in comparison to each other and with regard to international dynamics?*

From this broad question, this project aims to investigate three sets of more nuanced research questions. The first two chapters of the analysis primarily analyse the results from the

quantitative content analysis but also draw on sections from the interviews with journalists where appropriate. This way, the results from the content analysis are enriched with insights provided by the journalists who report on climate change. The first analysis chapter, chapter 6, investigates the main issues referred to in the selected articles and, in connection to this, asks what the most prominent news values are:

RQ 1a: What are the main issues reported in the articles with regard to climate change?
RQ 1b: What are the most prominent news values?

The second analysis chapter, chapter 7, elaborates on the way in which climate change is framed with regard to national and international issues:

RQ 2: How is climate change framed with regard to national and international issues?

Following on from the first two questions, the third set of research questions interrogates in more detail the connection between climate change reporting and the role of international structures behind the reporting. Chapter 8 focuses on the interviews and provides an analysis of them in regards to the third set of research questions. The results of the content analysis are also used where appropriate. The first question of this set looks at the (structural) issues and challenges, and the second question asks about the way in which international relations may be (re)produced through media discourse:

RQ 3a: Which structural or content-related issues influence the reporting of climate change?
RQ 3b: How are international (power) relations (re)produced through media discourse about climate change in African countries in contrast to countries in the Global North?

The thought behind having three (sets) research questions is, first, to use them as a guide in the research process and, second, to create a synergy between the results from the comparative content analysis and the findings from the interviews. There is no strict distinction between the analysis and the discussion. Throughout the research process, it evolved naturally that the analysis already encompasses the discussion. For this reason, it seemed appropriate not to have

a strict division between analysis and discussion but rather to allow for a more organic flow of the three chapters. The discussion points are summarised in the conclusion.

Based on the research questions there is one hypothesis that underlies this project. The hypothesis was formulated before conducting the analysis. It is based on the knowledge of some initial research into already existing studies and literature that will be explained in more detail in the literature review in chapter 3. The hypothesis *H1* expects that climate change is not covered as a global issue, instead different news values and national frames are used in each country which are influenced by structural challenges and underlying international (power) dynamics. Climate change reporting is the dependent variable, which is tested and measured, and the national media outlets function as the independent variable which are changed and controlled to investigate possible changes in the dependent variable.

The thesis is structured in nine chapters. The **first chapter** provides an introduction to the research and questions that guide the research process. It explains the focus of this study and shows how the researcher positions herself in the larger research context. The **second chapter** functions as a background to the analysis and introduces the different media landscapes of the selected countries. It provides relevant information about each of the eight countries and touches on the characteristics of each media system. It is particularly important to understand that each media landscape is different, as this also influences the reporting analysed in this thesis. The **third chapter** maps the field of climate change communication and establishes the gap within the field where this project can contribute to current literature. The literature review begins by looking at climate policy over the years and its role in the media. The next section focuses on the development of climate reporting over time, possible challenges as well as international similarities and national differences. The last section identifies the research gap to show how this thesis contributes to the field. The **fourth chapter** provides the theoretical foundation for the analysis. The first section presents the principles and developments of news value theory. Next, the concepts of Global South and Global North are defined, and potential issues and limitations are presented. This leads to a section that looks at the intersection between journalism studies and postcolonial theory. This is connected to questions of epistemic justice, followed by a section on research of climate change reporting in Africa. This section shows how there is still a gap in the research field of climate communications when it comes to including countries from the African continent. Lastly, the connection between global crises, such as climate change, and global news flows is explored. Following on from that, the **methodology chapter** lays the foundation for the analysis and explains the methods that are used and how they will be applied to the research object. The first section explains the selection

criteria for the countries and the media outlets. The next section describes the method of a quantitative content analysis referring to the sample selection, the sampling procedure, the creation of the codebook and coding procedure. This study also employs the method of interviews; the next section provides a theoretical foundation and describes the preparation and the interview process itself. The following three chapters (chapter 6-8) include the analysis and discussion of specific aspects with each chapter referring to one of the research questions. **Chapter 6** answers RQ 1a and RQ 1b by analysing the main issues that are covered in the articles collected for the quantitative content analysis and the role news values play in climate change reporting. **Chapter 7** looks at RQ 2 asking how climate change is framed with regard to national and international issues. Frames connected to climate change include political, scientific, environmental, economic, and other frames; frames connected to international relations include a cooperation, responsibility, and conflict frame. **Chapter 8** focuses on RQ 3a and RQ 3b and looks at a structural level including national and international issues and challenges. Each section analyses different structural or content-related issues such as a lack of knowledge and training or climate literacy. Subsequent sections look at the influence of national and international structures on the reporting. This includes the analysis of a national focus to help understand the impacts of climate change as well as an international focus which includes the discussion of responsibility for emissions, climate justice and (cultural) proximity as a factor for editorial choices. Finally, the research is summarised in a **concluding chapter** that also discusses how this project contributes to the literature and raises questions that may be relevant for future research.

1.3. Key terms: Climate change, climate crisis, and climate justice

Language choices matter, especially in journalism and especially with the widely discussed – and still partly contested – issue of climate change, or the climate crisis. Journalists need to be particularly conscious of the words they use to describe the issue "because of the history of controversy around climate change" (Whiting 2019). The words that are used in climate coverage already frame the issue in a certain way and "the language we use […] play[s] a role in shaping how we perceive issues" (ibid.). The description is no longer limited to the domain of science but has become a term that leaves room for interpretation depending on the sender and the recipient. The concept of climate change in the usage of the IPCC refers to "a change in the state of the climate that can be identified (e.g., using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically

decades or longer" (2007). Thus, climate change "refers to any change in climate over time, whether due to natural variability or as a result of human activity" (ibid.).

In recent debates about the communication of the anthropogenic influence on the climate, scholars and activists considered the term climate change to no longer cover the magnitude of the challenge we face. In addition to scientific accuracy, several journalists started looking for "words which instil some sense of urgency" (Whiting 2019) Thus, they introduced terms such as 'climate crisis' and 'climate emergency' to emphasise the seriousness of the situation. In 2019, after the British parliament declared a "climate emergency", *The Guardian* updated its style guide "to introduce terms that more accurately describe the environmental crises facing the world" (Carrington 2019). In the article, *The Guardian* further announced that "the preferred terms are 'climate emergency, crisis or breakdown' and 'global heating' is favoured over 'global warming', although the original terms are not banned" (ibid.). Referring directly to the term climate change, the editor-in-chief of *The Guardian*, Katharine Viner said, "The phrase 'climate change', for example, sounds rather passive and gentle when what scientists are talking about is a catastrophe for humanity." (ibid.). Thus, the words that a journalist uses to describe an issue needs to be consciously selected because it determines the framing and, thus, influences the reader's perception of it. "In the war, the purpose of journalism was to awaken the world to the catastrophe looming ahead of it. We must approach our climate crisis the same way", writes Bill Moyers (2019) in an opinion piece for *The Guardian*.

On the other hand, scholars argue that "we may have reached 'peak negativity', where the news is so full of serious crises that people are increasingly avoiding it" (Atanasova & Fløttum 2019). On a similar note, Geo Takach (2019) writes in an opinion piece for the *National Observer*: "A danger of a term like 'crisis' becoming commonplace is the risk of losing its power to inspire thought, concern and action." Wolfgang Blau (2022), co-founder of the *Oxford Climate Journalism Network*, provides yet another reason for using the term 'climate change' instead of 'crisis':

> The word 'crisis' describes a temporary phenomenon with a beginning and end. But if we magically stopped all greenhouse gas emissions at midnight tonight, no person alive — not even today's children — would have the privilege of seeing the end of the climate challenges we have already triggered with the greenhouse gas emissions made until today. This is why 'climate crisis' is not a very precise term.

Blau suggests that lexical variation may present a potential solution; this means using various terms to describe the complex phenomenon including global heating, global warming, climate emergency, "or simply: 'the climate question'" (ibid.).

The above paragraphs have already hinted at the complexity of the climate debate. The discussion is no longer limited to the scientific domain; instead, it now includes a social component, as well. In this context, the concept of climate justice is relevant for this research. Following the definition of climate justice formulated by the *Equinox* initiative, the concept refers to "the concerns about the inequitable outcomes for different people and places associated with vulnerability to climate impacts and the fairness of policy and practice responses to address climate change and its consequences" (Truong & Mbulo 2021: 5). By taking the approach of climate justice, climate change is not only perceived as a scientific concept but is framed through "the prism of colonialism and empire" (ibid.) in order to acknowledge that the groups that are most affected by the impacts of climate change oftentimes are the least responsible. By pointing to these injustices, the concept of climate justice aims to advocate for solutions to redistribute power and create dialogue between the different groups instead of simply focusing on emissions targets and technologies (ibid.).

1.4. Positionality of the researcher

Before proceeding with the thesis, I would like to address my positionality as a female, white, able-bodied researcher, since it shapes the way I perceive the world and consequently affects my research. In undertaking this project, I situate myself within different national contexts that are shaped by power imbalances. Hall (1990) said, "[t]here's no enunciation without positionality. You have to position yourself somewhere in order to say anything at all." For this reason this section is written using the first person to show how the knowledge created here is not separable from the researcher. At the same time, it can help to reflect on the personal relationship with the research process as well as simultaneously revealing and deconstructing the researcher's biases based upon personal background.

My research aims to consider the baggage of the injustices of colonialism, capitalism and patriarchy, and other forms of epistemic dominance. This means that as a researcher, I need to be conscious of my own role when conducting research in African countries, among others, and doing so in a way that does not result in upholding certain structures due to epistemic privilege (Grosfoguel 2013). Therefore, this research seeks to remain conscious of hegemonic research practices that privilege certain groups and theories. As a German researcher at a British university, I cannot claim to conduct this research from an Afrocentric perspective; however, I was conscious of giving the experts from the selected countries the space to speak about their perception. Instead of promoting "a form of epistemological ethnocentrism" (Willems 2014a: 418), defined by Mudimbe (1988) as "the belief that scientifically there is nothing to be learned

from ‘them’ unless it is already ‘ours’ or comes from ‘us’” (15), stories told by every single journalist in this study were handled in the same way with no implied hierarchy.

Referring to the call to de-westernize and internationalize (Thussu 2009), the research field could potentially discard decades of media scholarship carried out in different parts of the Global South and discount the progress and the work that went into diversifying the research field. A great amount of research continues “to be carried out in largely separate networks and journals with little debate and comparative research happening across and between linguistic regions” (Willems 2014a: 418). This section of the thesis should in no way be a justification for, nor disregard progress that has been made, but should, rather, be read as an attempt to continue to raise awareness on the persistent existence of these issues. It is not favourable to constantly reproduce and focus upon injustices while not giving enough credit to progress that has been made. However, it seems important to address the following concerns and debates in order to move forward with this research project.

This study does not follow the assumption of an ideal way of reporting climate change. This is an important point to make since the production of knowledge is political and emerges “under conditions that are enmeshed in relations of power between knowers and knowledge itself” (Ali 2006: 472). Scholars have criticised the way in which ‘the West’ produces knowledge by simultaneously invocating concepts of ‘the Other’ such as ‘the East’ or ‘the Orient’ (see e.g., Said 1994).

In my position as a researcher, I am analysing countries without sharing a direct relation to any of the communities except for Germany, where I was born and where I grew up, and the UK, where I have been conducting this research for my PhD. When these “systems of knowing” are not reflected upon and deconstructed, they can marginalise and objectify other people and portray them as insufficient (Milner 2007: 389). For this reason, the relationship between the researcher and the researched should be dynamic and visible and consequently open to debate with both parties open to learn from each other.

This opening chapter set out the research objectives and described the structure of this thesis. The following chapter will provide some general background information about the selected countries’ media landscapes.

2. Understanding the different media landscapes

2.1. National media landscapes

This thesis analyses climate coverage in eight different countries from three different continents. For the data collection, articles from two websites per country were collected and then analysed in the process of this research. Media landscapes are unique to every country with specific characteristics and structures. Media coverage varies between different publications, countries and (especially) continents. Specific knowledge of each media landscape and news website that is included in this project cannot be taken for granted. For this reason, this chapter aims to provide some background information that can be useful for understanding the results of the analysis. The following section describes the national media landscapes of each of the selected countries and presents each of the two websites and introduces some of their characteristics. The final section of this chapter looks at the period of observation for this study and names some of the events that have shaped the coverage of climate change in this period.

The media landscape of each country is unique with different systems of private and state-owned press; however, using some set criteria for selecting the different news outlets proves useful when conducting comparative research. Considering the scope of this project, two websites were selected from each country, plus *The New York Times* as a more internationally perceived outlet, which adds up to 15 different outlets in total. The overarching selection criteria for the websites are explained in detail in section 5.4. To understand the selection of the different websites for each country more clearly and to have some background information prior to the analysis, the following paragraphs give an overview of the media landscapes:

Ghana

Located in West Africa, Ghana is a state with a variety of religious, linguistic, and ethnic groups. The nation has emerged as one of the most stable democracies of the continent with its influence exceeding its national borders, leading to an integration in international affairs (Ateku 2017). The country is perceived as "one of the most prominent nations in Sub-Saharan Africa" (Nwabueze & Egbra 2016: 117)

The Ghanaian media system has a dual structure with a separation between state and private press. The two state-funded newspapers are the *Daily Graphic* and the *Ghanaian Times*. The combination of state and private press "constitutes an intensely dialogic and hotly contested

public sphere, constructing the authoritative social imaginary of the government while equipping oppositional groups with a means of discursive challenge and political re-signification" (Hasty 2005: 3). Due to the historical and cultural context, journalism in Ghana has been situated within a field of tension between "distinctive forms of African modernity, postcolonial nationalism, and global articulation" (ibid.: 5). This means that journalistic practices in Ghana are shaped by the "historicized cultural understanding of political authority and resistance" (ibid.) as well as influences of African sociality. While most newspapers focus on national events, journalists in Ghana increasingly position themselves within the global sphere to shape international discourse (ibid.).

Looking back in history, the first newspapers in West Africa were published by colonial authorities in Sierra Leone in 1801 and the Gold Coast in 1822 (Jones-Quartey 1975). They presented an official voice of colonial policy while at the same time distributing regional news (ibid.). In the mid-19th-century, African elites began publishing their own newspapers in Ghana, Sierra Leone, and Nigeria, which targeted an educated African readership (Hasty 2005). This step paved the way for strengthening a new social identity as African elites. The "imported form of mass-circulated discourse" (ibid.: 9) presented a new means of telling an alternative story and thereby creating political authority while still being suppressed by colonial powers. At this time, the space was dominated by a few privileged "Anglophiles discursively positioning themselves to inherit the authority of the British" (ibid.).

After the liberation and the retreat of colonial forces, the state quickly took control over the news media. This meant that news media did not become a means of empowerment for the people; instead, for the most part, media played the role of "an institution of propaganda representing the semblance of national unity and cooperation in the pursuit of a common destiny" (Hasty 2005: 10). While journalists working for the state press showed a strong commitment to the national interest of unity, other journalists started to take up a "competing version of postcolonial nationalism, less invested in the state patronage and more oriented toward global articulation and market competition" (ibid.: 11).

Recently, researchers have observed a lack of plurality in Ghanaian mainstream media; according to Asante (2020), they are dominated by "a narrow set of ideas" often based on neoliberal and capitalist ideas and issues that are of interest to the political class and the elites. According to *Reporters without Borders* (2021a), a third of all media outlets are either owned by the state, by politicians, or by people affiliated with the major political parties. Similarly, a majority of the media content, especially news pieces and coverage of current affairs, presents a level of partisanship (Asante 2020). This is despite the fact that Ghana continues to be seen

"as one of the most democratic countries in Africa and Chapter 12 of its 1992 constitution guarantees media pluralism and independence" (Reporters without Borders 2021a). Nonetheless, while investigative reporters are frequently threatened, they are rarely arrested (ibid.). Asante (2020) argues that the country requires a balance of power which could be reached by operationalising the Freedom of Information Law that was passed in March 2019. This law would prevent officials from declining to share information, data, and public documentation (ibid.).

Despite an unbalanced relationship between politics and the media, the media's logistical and financial constraints further complicate the situation (Asante 2020). According to the IREX report 2012, media companies are "poorly capitalized, one-man-owned endeavours in which the proprietor is often also a pseudo-politician. The duties of the other staff, if there are any, are not well defined. The proprietor is the editor-in-chief, sub-editor, and business and financial manager" (citied in Asante 2020). This leaves journalists with tight resources – monetary and logistic – to produce in-depth and investigate pieces, which are necessary to produce well-researched and in-depth coverage of climate issue (ibid.).

For this project, the *Ghanaian Times* (state owned) and the *Daily Guide* (privately owned) were selected. Both newspapers, as well as their online presence, are among the most authoritative in Ghana (Nwabueze & Egbra 2016). Additionally, both newspapers are considered part of the quality press of the country with a large audience base (ibid.).

The *Ghanaian Times* is run by the state-owned publisher *The New Times Corporation* (NTC) which was established by former President Kwame Nkrumah in 1957. It is one of the most circulated and most authoritative newspapers in Ghana (Nwabueze & Egbra 2016). The *Ghanaian Times* covers relevant topics ranging from politics, business and education to sports and crime in print and online. Its readership consists mostly of politicians, researchers, diplomats, and other authorities (Media Foundation for West Africa 2017).

The *Daily Guide* is one of Ghana's leading private newspapers and has the second largest readership of 1,191,000 (18.9%), according to Geopoll's audience research in 2017 (cited in Media Foundation for West Africa 2017). Due to a political focus, its readership includes policy makers and academics. According to the market research agency *The Centre for Brand Analysis Ghana*, the *Daily Guide* has established itself as the best brand in the private press sector (ibid.). The *Daily Guide* is run by *Western Publications Limited* with the Blay family holding the shares. Some of the family members are involved in politics: The majority shareholder of the company, Frederick Blay, is a substantive Chairman of the *New Patriotic Party* (NPP) and holds the position of Board Chairman for the *Ghana National Petroleum*

Corporation (GNPC). The *Daily Guide* publishes its content both in print and online. Neither the *Ghanaian Times* nor the *Daily Guide* include a prominently placed section for environment and climate news in the header of their respective websites.

Kenya

Relative to other African nations, the history of Kenyan press is rather recent (Press Reference n.y.). The Kenyan press has a triple heritage. Journalistic practices, public expectations and the relation between press and state have been shaped by three partly interwoven and partly conflicting "sets of ideas about the role of the press in a new nation: the liberal/commercial; authoritarian/development, and advocacy/protest traditions" (Heath 1997: 30). The Republic of Kenya was proclaimed in 1964 and has since then undergone several changes in its political system such as the transition to a multiparty political system in 1991. Kenya has put great effort into being recognized as a modern liberal democracy aiming to play an active role in international affairs (ibid.). According to this image, Kenya has a privately-owned, competitive press that is regulated by law and can be traced back to colonial legislation (Heath 1997). Despite the impression of an accessible media landscape, media access has a lower threshold for those who can understand English or Kiswahili (Heath 1997).

While Kenya has a dynamic, pluralistic media landscape with leading media that also report critically about politicians and the government, the relationship between media and government has become tense over the last decade (BBC Media Action 2018). The 2010 constitution guarantees press freedom, "but respect for this freedom is precarious and depends a great deal on the political and economic environment, which was undermined by the coronavirus crisis in 2020" (Reporters without Borders 2021b). Accordingly, Kenya is ranked 102nd in the 2021 World Press Freedom Index (ibid.). Due to the pandemic, at least 300 journalists lost their jobs and politicians continue "to exercise a great deal of influence over both state and privately-owned media" (ibid.). For this reason, journalists regularly censor themselves to a certain degree in order to avoid provoking tensions with the government (ibid.).

Most Kenyans use radio which is accessible even to most of the rural population (BBC Media Action 2018). Simultaneously, print media products have expanded their range, resulting in an increased readership, yet lately circulation figures have dropped (Friedrich Ebert Stiftung 2012). The Kenyan print media can be divided into regular daily newspapers, magazines, and regional newspapers. The country has four daily national newspapers in English and one in Kiswahili. All are published in Nairobi.

For the analysis, *The Standard* and the *Daily Nation* are selected. The following paragraphs provide the reasons behind this choice as well as some background on the two publications.

The *Daily Nation* is published by *Nation Media Group* (NMG) Kenya and was first registered in 1959 in Nairobi and London by Michael Curtis and Charles Hayes. One year after its registration, the spiritual leader of the Ismaili community Aga Khan purchased the NMG. The Aga Khan is still the majority shareholder in the NMG and has since then started to publish other newspapers. Now, the *Daily Nation* publishes a newspaper and has an online presence. Neither *The Standard* nor the *Daily Nation* have a separate header for environment and climate issues on their website. (Friedrich Ebert Stiftung 2012)

The oldest mass circulating newspaper in Kenya is *The Standard* which was founded in 1902. Since then it has become the largest, most influential publication in the former colonial area of East Africa. Even after Kenya gained independence in 1963, it took some time before *The Standard* started to identify explicitly with the aspirations of the East African people (Press Reference n.y.). It is one of the few newspapers that to this day has a strong readership and a daily circulation of 54,000, plus its online presence, which is why it has been selected for this study (ibid.).

Namibia

Namibia, despite having a fairly small population and land area, has a diverse and pluralistic media environment with various local media houses in radio, broadcasting and print (Remmert 2019). Its media freedom is relatively high compared to some of its neighbouring countries. Over the past years, the country has ranked in the upper quarter of the Press Freedom Index of *Reporters without Borders* reaching position 21 in 2010 and has been Africa's best-ranked country in RSF's World Press Freedom Index since 2019 (Reporters without Borders 2021c). Namibia is currently ranked 24th in the World Press Freedom Index (ibid.). The *African Media Barometer* found that media content is largely dominated by politics and economics and that newspapers owned by the state are perceived as not entirely free of political interference (Friedrich Ebert Stiftung 2018).

Namibia's history has been shaped by the suppression of the black majority by European colonial powers like Germany. The media were controlled and influenced by the governments – "both during German colonial rule (1884-1915) and even more clearly during South African occupation and Apartheid (until 1990)" (Rothe 2010: 10). Since then, the media landscape has evolved and the print market especially has become highly diversified, compared to its

neighbouring countries, with five daily and other weekly and monthly publications (ibid.). However, Rothe (ibid.) notes that "newspapers and other print publications are still an elitist medium in Namibia" (15). The main daily newspapers are *New Era* (state-owned publication), *The Namibian*, the *Namibian Sun*, *Die Republikein* (an Afrikaans-language paper) and *Allgemeine Zeitung* (a German-language newspaper).

Apart from print, Namibians mostly access television and radio. Additionally, Namibia's media landscape is currently undergoing a digital transformation with more news being published and consumed online. Most daily and weekly papers have an online presence with content available on their respective websites (Friedrich Ebert Stiftung 2018). Access to the internet is widely spread in urban areas (ibid.).

For this study, articles from the websites of two of the main daily newspapers are analysed. The first newspaper is *The Namibian* which is the largest daily newspaper in Namibia with a circulation of about 35,000 copies per day, published in English and Oshiwambo. Founded in 1985 with international financial support, the aim was to open and challenge the "then extremely restricted and oppressive media environment in Namibia" (citation in Rothe 2010: 29). Already the title of the newspaper itself "was an affront against the state which was then still officially called South-West Africa" (ibid.). Nowadays, it is one of the leading newspapers in the country.

The second website used in this study is operated by the state-owned newspaper *New Era* which is among the top four dailies in Namibia and the youngest publication among the four (Rothe 2010). It is published in English and five indigenous languages including Otjiherero, Oshiwambo, Damara/Nama, Silozi, and Khwedam (ibid.). While *New Era* is published by the *New Era Publication Corporation*, owned by the government of Namibia, a study conducted in 2006 by Swedish researchers found it to be "more critical and fierce" (ibid.: 26) than *The Namibian*. On the *New Era* website there is no separate header for environmental topics; however, when going on the news section on the website by *The Namibian*, there is a section for environmental issues when you click on 'News'.

Nigeria

Nigeria has the largest population and economy of the African continent (Nwabueze & Egbra 2016). According to the *African Media Barometer*, Nigeria has a vibrant media scene with several different news sources ranging from a "struggling newspaper industry to expanding online news and information services" (Friedrich Ebert Stiftung 2019: 5). The media landscape is shaped by a strong civic space that especially encourages independent media (ibid.). In the

past, Nigeria's media landscape has been shaped mostly by the institutionalisation of Western liberal democracy and developed within "the dynamics of the country's political economy" (Oso 2005: 8). In line with this, the media system has a dual character demonstrating an ideological and political apparatus while functioning as a mostly private organisation (ibid.). The Nigerian press is mainly organised within private enterprises, while broadcasting is largely state-owned. In the 1970s and 80s, state-owned newspapers dominated the market, whereas nowadays, no prominent newspaper is owned by the Nigerian government (ibid.). Recently, the use of newspapers in Nigeria has started to decline, while online news and information services are expanding (Friedrich Ebert Stiftung 2019). The broadcasting sector has also been rapidly expanding, and private broadcasting has become considerably more popular (ibid.).

The role that media can play in politics by supporting a party can be challenging and impact not only people's opinions but also their trust in the media coverage. For example, Nwokeafor and Okunoye (2013) criticise the Nigerian media for reporting in favour of one political party or candidate despite distancing themselves from favouritism. This, however, is not unique to Nigeria; in fact, media in several countries have demonstrated political affiliations.

Looking at the level of press freedom, *Reporters without Borders* labels Nigeria as "one of West Africa's most dangerous and difficult countries for journalists" (Reporters without Borders 2021d). Journalists have suffered attacks, including arrests, and were subject to disinformation campaigns during the 2019 election campaigns. For these reasons, the country is ranked 120th in the 2020 World Press Freedom Index. Despite violence against journalists, Nigeria has more than 100 independent newspapers, enjoying "real media pluralism" (ibid.). Nonetheless, the coverage of "stories involving politics, terrorism, financial embezzlement by the powerful or conflicts between communities is very problematic" (ibid.).

For the analysis, *The Guardian* and *Vanguard* are selected. The following paragraphs provide the reasons behind this choice as well as some background on the two publications.

The Guardian is one of the most prominent quality newspapers in Nigeria with a more elitist readership. *The Guardian* is an independent newspaper that was established for the purpose of contributing to a balanced, well-researched coverage of events to promote Nigeria's best interest of unity. It is considered independent and balanced with no affiliations to any political party, ethnic or religious community, or any other interest groups. *The Guardian* publishes its content both in print and online; it does not have a separate header for environmental news on its website.

Vanguard is a daily newspaper published by *Vanguard Media*, established in 1983. It is one of the few Nigerian newspapers that is considered independent of political control (Nwabueze & Egbra 2016). *Vanguard* is among the most widely circulated and read newspapers in Nigeria with a strong online presence (ibid.). There is no prominent section for environmental news on the website.

South Africa

Due to South Africa's turbulent history, the media had to operate "under a system of pervasive state intervention and racial segregation known as apartheid" (Angelopulo & Potgieter 2016: 986). Restrictive policies were enforced on the media including state censorship and ownership. Until 1994, the Department of Home Affairs had direct authority over broadcasting. After the first full democratic elections in 1994, economic liberalisation and editorial diversification began to evolve. However, ideological influences and state interventionism from the Apartheid era have remained present in the structure of the South African media landscape (ibid.).

In 2021, South Africa ranked 32nd in the World Press Freedom Index and press freedom is guaranteed but – in some areas – fragile (Reporters without Borders 2021e). Since the 1996 constitution, press freedom is protected by law which has encouraged an investigative journalism culture. Despite this, "apartheid-era legislation and terrorism laws are used to limit coverage of governments institutions when 'national interest' is supposedly at stake" (ibid.). In some cases, journalists are subjected to intimidation or harassment when trying to cover certain subjects related to "the ruling African National Congress (ANC), government finances, the redistribution of land to the black population or corruption" (ibid.). To avoid digression, the complex history of the South African media landscape, the role of colonial suppression and the developments during and after the Apartheid regime cannot be explained here in detail. Wasserman and de Beer (2005) give an overview of key developments and tensions between the government and the media.

South Africa's media landscape offers great diversity with several different titles, stations and websites. With a keener eye, however, it becomes apparent that a small number of companies dominate the media landscape with different outlets. *Media24*, *INM*, Avusa, and *Caxton/CTP* account for the largest share of the South African media market. Most media content is published in English, alongside an Afrikaans-language market for a variety of media productions (Angelopulo & Potgieter 2016). Content in other languages is much smaller, except for various radio programmes and some other printed content in languages like Zulu (e.g., the paid tabloid *Isolezwe*) (ibid.).

Over the past decade, there has been a robust population growth along with steady economic growth, leading to an increased population of potential media consumers (Angelopulo & Potgieter 2016). Apart from national publications, the urban educated classes sometimes tend to prefer reading foreign newspapers online and, with English being the main language of commerce, access to such media products is easy and common (ibid.). On a similar note, national publications often use and reprint foreign content directly in English or in Afrikaans: "Foreign print media consists mainly of UK and US publications, both imported and localized." (ibid.: 1006).

South Africa presents an emerging media market in the global economy with steady advances especially for online media (Mavhungu & Mabweazara 2014). By now, nearly all print publications have websites where they offer their content to online users.

For the analysis, *The Times* and the *Mail & Guardian* were selected. The following paragraphs provide the reasons behind this choice as well as some background on the two publications.

The Times was one of the first online news platforms in South Africa and has become the second-largest news website in the country and still is one of the leading innovators of the industry (Mavhungu & Mabweazara 2014). *The Times* is mostly known as a newspaper which was founded in 1906 and is owned by one of the four largest media companies in South Africa, *Avusa*. *The Times* also publishes *The Sunday Times*, one of South Africa's Sunday newspapers. *The Times*' website has no environment section included in the header.

Apart from major English-language publications like *The Times*, a smaller but politically important group of newspapers started to emerge in the 1950s "with the intention of giving voice to anti-apartheid sentiments" (Angelopulo & Potgieter 2016: 989). One example is the *Mail & Guardian*, a newspaper owned by *M&G Media*. The *Mail & Guardian* launched its website as one of the first media companies in Africa in the mid-nineties. Since then, the paper has continued to "experiment and innovate with its business model, which combines the traditional newspaper and 'new media'" (Mavhungu & Mabweazara 2014: 39). In 2008, the independent online version *Mail & Guardian Online* was launched to keep up with international trends. In 2019, the *Mail & Guardian* joined the global climate reporting network *Covering Climate Now*:

> The Mail & Guardian has always reported on the state of our environment, and climate change. Our newsroom believes that little else matters if we don't take the climate crisis seriously. To help reverse this silence, and to give you more news about the climate crisis around the world, we've joined Covering Climate Now, a collaboration between some 250 newsrooms, spread across the globe. (Kings 2019a)

An environment section is included in the website's header next to politics, business, news, and other sections.

Germany

The media landscape in Germany is structured in a dual system of private and public-service media. The latter is funded by a broadcasting fee, but strictly separated from the government. This means that it does not rely on ad revenues; instead, each household must pay a certain amount in order to support public broadcasting. The separation from the government is emphasised and specified in the Interstate Broadcasting Agreements (Rundfunkstaatsvertrag). This separation is a direct result of the country's history since the mass media became a propaganda tool of the dictatorship during the Nazi era (Thomass & Horz n.y.). Public broadcasting is divided into three superordinate stations: *ARD*, *ZDF* and *Deutschlandradio*. The *ARD* itself is structured into nine separate regional public-service media (Landesrundfunkanstalten) covering news from the different states and regions of the country. This decentralised broadcasting system reflects the federal system in Germany (ibid.). The public-service media focus mainly on the broadcasting sector.

Apart from public broadcasting and other commercial broadcasters, Germany has several private media companies with different publications. Due to market concentration, "five large companies have a highly-diversified range of print-and other products that dominate the newspaper market: Axel Springer SE, Südwestdeutsche Medienholding, Funke Mediengruppe, DuMont Schauberg, and Madsack" (Thomass & Horz n.y.). The different publishing companies arrange themselves along a spectrum of political affiliations ranging from right-leaning to conservative to a more left-leaning coverage. However, political parallelism in the press is "traditionally low since 1945" (ibid.).

According to the World Press Freedom Index assessed by *Reporters without Borders*, Germany presents a satisfactory situation and is ranked 13th out of 180 countries in the 2021 world rankings (Reporters without Borders 2021f). *Reporters without Borders* describes the situation as follows: "Solid constitutional guarantees and an independent judiciary ensure a favourable environment for journalists in Germany." (ibid.) However, the pressure from the right continues to grow and in line with this, "2020 was a particularly violent year for journalists, especially during protests against Covid-19 restrictions, when some reporters were attacked" (ibid.). Additionally, populist politicians try to systematically cast doubt about the integrity and independence of the media, especially of the public broadcasting (ibid.)

The analysis includes articles from *Die Süddeutsche Zeitung* and *Die Welt*. The following paragraphs provide the reasons behind this choice as well as some background on the two publications.

Die Süddeutsche Zeitung is a privately owned, nationwide operating media company with different outlets such as the newspaper and its website *sueddeutsche.de*. The newspaper had a circulation of about 1.26 million readers in 2020 (Weidenbach 2021a). In comparison to other national newspapers, *Die Süddeutsche Zeitung* is the second most read newspaper after *Die Bild* (ibid.). *Die Süddeutsche Zeitung* publishes its content in a daily newspaper with additional magazines on the weekends and a website which contains articles from the paper's own online staff as well as articles that originally appeared in the print version of the paper. *Die Süddeutsche Zeitung* does not include an environment section in the header of its website.

Die Welt is part of *Axel Springer*, one of Germany's biggest publishing companies which also publishes *Die Bild* newspaper referred to above. The circulation of the newspaper *Die Welt* ranks fifth place after *Die Bild*, *Die Süddeutsche Zeitung*, *Frankfurter Allgemeine Zeitung* and *Handelsblatt* (Weidenbach 2021b). *Die Welt* publishes a daily newspaper with regional supplements and has a website called *Welt Online* which contains original articles as well as articles from the print version of the paper. *Die Welt* does not include an environment section in the header of its website.

Die Welt and *Die Süddeutsche Zeitung* both have a strong online presence on their respective websites and their social media platforms. They are perceived as quality media with the reach and the importance to influence the public agenda. *Die Welt* is considered to report on topics from a more conservative, right-leaning perspective, while *Die Süddeutsche Zeitung* is considered to be more left-leaning and liberal in its coverage (Deutschland.de 2012). As quality media with a high circulation, they both present part of the spectrum of the media landscape in Germany which is why they have been selected for this study.

United Kingdom

The UK media landscape is structured in a dual system divided into commercial national press and a system of public service broadcasting. The UK is ranked 33rd in the 2021 World Press Freedom Index published by *Reporters without Borders*. According to this report, domestic restrictions cause concern "despite the UK government's stated commitment to defending global media freedom" (Reporters without Borders 2021g). The detention of *Wikileaks* publisher Julian Assange particularly contributed to increased concern about the UK's press freedom record (ibid.). In 2020, the National Committee for the Safety of Journalists was

established, followed by the publication of a National Action Plan in March 2021 (ibid.). According to *Reporters without Borders*, "the misuse of UK courts to pursue journalists and the proliferation of SLAPPs (Strategic Lawsuits Against Public Participation) continue to boost London's reputation as the defamation capital of the world" (ibid.).

Furthermore, a "sharp distinction" (Firmstone n.y.) exists between quality media and the tabloids. Referring to Hallin and Mancini (2004), the concept of press parallelism was developed in Britain and "relates to the tendency of the British press to reflect divisions in political parties closely and to adopt distinct political orientations even though newspapers do not have official links with political parties" (Firmstone n.y.). Tabloids, in particular, often manifest their political orientations in their news reporting, blurring a clear division between news reporting and opinion (ibid.). In the past, there have been shifts in the observed partisanship of some publications. For example, the tabloid *The Sun* famously switched support to the Labour party in 1997, only weeks before Tony Blair became Prime Minister despite attacks on Blair only a month earlier. In 2009, *The Sun* – with the headline "Labour's lost it" – announced that it no longer supported the Labour Party (The Guardian n.y.).

But it is not only tabloids that have a history of switching their partisanship. For example, *The Times*, considered a quality newspaper in the UK, changed its political allegiance several times. Similarly, *The Times* supported Tony Blair's Labour government and then declared its support for the Conservative Party for the 2010 general election (The Guardian n.y.).

The Times and *The Independent*, and more specifically their websites, are included in this study. One reason is their slightly opposing political allegiances. Since 2010, *The Times* has been known as a supporter of the Conservative Party, subsequently endorsing Boris Johnson in the 2019 general election (The Times 2019). *The Independent*, on the other hand, leans more to the left of the political spectrum like *The Guardian*. However, before the 2015 general election, the *Independent* publicly refrained from suggesting to their readers how to vote:

> The Independent on Sunday is not like other newspapers. We hope that our writing is better, our reporting more balanced and that the whole package is better edited. Those are for you to judge, of course, but there is one way in which we are indisputably different: which is that we are not suggesting how you should vote on Thursday.
> (Independent 2015).

The *Independent* reached a monthly audience of over 28.1 million individuals from April 2019 to March 2020 in the UK (Watson 2021a). The reach was particularly high for readers over the age of 35 (ibid.). In addition to the considerable readership of its print

publication, *The Independent* was placed 15th on a list of the most accessed online news brands, topped by *BBC News* online (ibid.). *The Independent* has its separate Climate section, which is listed prominently on the website's header.

In contrast to that, *The Times* had an average monthly reach of around 15 million adults in the UK from April 2019 to March 2020 (Watson 2021b). Of the leading national newspapers in the UK in 2019, "The Times was the only one to have a higher reach in print than any online version" (ibid.). *The Times* has an environment section which is listed under the "Explore" button.

United States

In recent years, the media landscape in the United States has entered "a period of intense change" (Hallin n.y.) including an increase in the number of media companies, blurred boundaries between the media sectors and an increasing power shift over the flow of information towards so called 'tech giants'. In the mid-twentieth century, the media system was characterised by "a fairly stable equilibrium" (ibid.) with highly profitable, dominant media companies that exerted a high social influence. According to Hallin (ibid.), journalism at that time was characterised "by a low level of 'political parallelism'" where most news organisations tried to follow an 'objectivity norm'.

In the past years, some of the elements that contributed to the "stable system of the late twentieth century" (Hallin n.y.) have been disrupted by political, economic, and technological changes. The role of cross-media conglomerates such as *Google* or *Meta* (formerly *Facebook*) has become increasingly controversial, especially since the rise of 'fake news' and their influence on political processes (ibid.). Besides that, several media companies have faced economic issues and simultaneously have felt pressure to expand their business to online content. Additionally, political parallelism has increased with many media "adopting strong partisan identities" (ibid.). And even if some quality media try to avoid such identities, "public attitudes toward the media are often sharply differentiated by political orientation" (ibid.), especially since the 2016 presidential election campaign.

The US are ranked 44th on the 2021 World Press Freedom Index and despite improvements, there are still some issues related to press freedom (Reporters without Borders 2021h). At his inauguration in 2021, President Biden stated that "a free press is essential to the health of democracy" (cited in Hallin n.y.), expressing his intention to improve the government's transparency and its separation from the media. However, while the political intent is there, underlying conditions such as "the disappearance of local news to the ongoing

and widespread distrust of mainstream media" (ibid.) remain. During President Donald J. Trump's final year in-office, nearly 400 journalists were assaulted and more than 130 detained – unprecedented numbers according to the U.S. Press Freedom Tracker (ibid.).

The New York Times (NYT) is included in this study. It does not have a national focus limited to the US, exerting influence on the media agenda beyond national borders. The *NYT* presents "a pivotal institution in American democracy" (Usher 2014: 6) and Usher (ibid.) argues that it remains "the most important newspaper in the United States" (8). The *NYT* is one of the most widely read newspapers and has over five million digital-only subscribers as of early 2021 (Watson 2021c). Apart from news stories on current events, the *NYT* is known for its investigative reporting and features. For this reason, the *NYT* has been part of several research studies where its reporting was used as a benchmark or in relation to inter-media agenda setting (see e.g., Golan 2006). For example, Harlow and Johnson (2011) chose to analyse the coverage of the *NYT* "because it is the 'paper of record' for the United States, dominates in international news coverage, and adheres to traditional journalism norms and ethics" (1363). In addition to its considered trustworthiness among US citizens, the reporting is also perceived as accurate with a slight to moderate left-centre biased (Watson 2021c). There is no separate section for environment or climate news on the website; the sections science and health are included in the header.

The *NYT* introduced a "climate desk, with more than a dozen investigative, science, policy and visual journalists" (Shimabukuro 2020) in 2019 with a team that collaborates with other desks to report on the different angles of this issue.

2.2. Period of observation

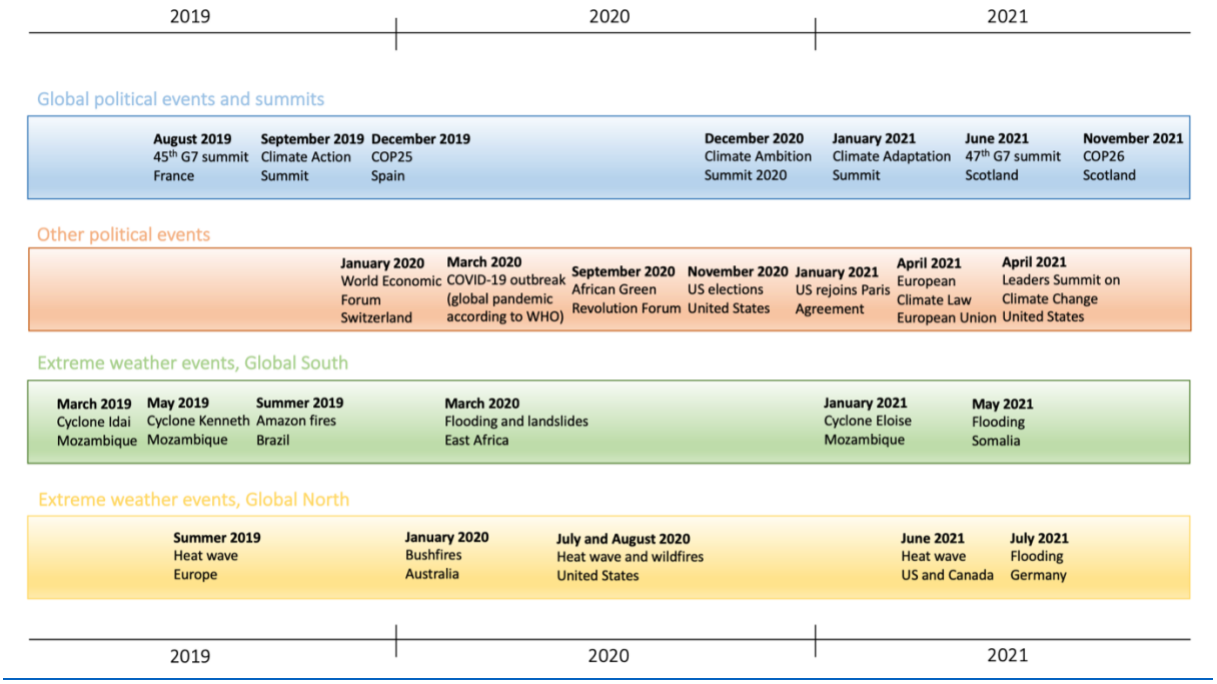
The articles for the quantitative content analysis were collected in the time period between 01 January 2020 and 30 June 2021. This period covers part of a key historical time to study due to a heightened awareness of climate change initiated by global protest movements, political developments, and unusual weather events. Additionally, this period covers the time leading up to the highly anticipated COP26 in Glasgow and coincides with the outbreak of the global Coronavirus pandemic. In order to provide a foundation for the analysis, this introductory section gives a brief illustration of some of the issues and events that took place during the 18 months, as well as a brief outline of the months preceding the period of observation to give some context. This section functions as a preface to the content analysis with a summary of some of the events that may have influenced the reporting in this specific time frame. The summary is not intended to be exhaustive and mostly focuses on the countries referred to in this

project. Additionally, some background information can be useful to evaluate the level of attention media outlets focused upon certain events while omitting others.

Several natural disasters and extreme weather events in different parts of the world shaped the period between mid-2019 to mid-2021. Heat waves, droughts and floods occurred in different parts of the world. At the same time, several international summits and conferences took place, in order to address questions of climate change mitigation, adaptation and international cooperation on the pressing questions surrounding the climate crisis.

The following illustration shows some of the most notable events in the period covered in this study to give some context and provide a foundation for the analysis. The illustration is split into four categories to provide structure for the different events that took place during the period between 2019 and 2021. The first timeline lists the global events and summits including UN-conferences, the second timeline includes other political events with a narrower reach. The two lower timelines list extreme weather events that occurred in regions located in countries of the Global South and countries of the Global North respectively.

Figure 1: Period of observation



Some events and issues in the time period between 2019 and 2021 became intertwined and/or stretched over longer periods of time. These include the political situation in the US and the change of government, the global pandemic with some countries putting climate change at the centre of their Covid-19 recovery plan, as well as regular climate strikes and protests organised

by groups such as *Fridays for Future*, *Extinction Rebellion*, and other local activist groups. All events contribute to a dynamic field of tensions between national political agendas, activist claims, natural disasters, and other national and transnational interest groups. How these events and issues are reported in each of the news media will be analysed in the following chapters.

3. Literature Review

3.1. Introduction

The literature review outlines some of the main literature linking this thesis to the wider context of previous academic research. It aims to give an overview of the research field as it relates to this study, including works from sociology, journalism, as well as media and communications studies. In order to keep this chapter in line with the project and its research questions, not every study that has been published in this field is included. This chapter rather aims to create a foundation for the analysis and includes key literature to achieve this goal. The literature review gives an overview of already existing findings and discusses the concepts and terminologies used in studies relevant to this thesis. This foundation is then used to show how this project fits into the existing research field and, finally, establishes from the literature the research questions that remain to be answered.

The literature review is divided into four sections: The first section lays the foundation for the discussion of climate change in the media by outlining some of the key concepts in climate policy in relation to North-South conflicts and their presentation in the media. The second, most substantial part of the literature review, presents key literature outlining the general research field with a focus on the development and the content of climate change reporting, its challenges relating to journalistic practices, as well as differences and similarities in national coverage. The third section evaluates the state of research focusing specifically on climate change reporting in the African context including shortcomings mentioned in already existing studies. Based on prior sections, the final part contextualises the research at hand by referring to research gaps that are established throughout the literature review in more detail and thereby sharpening the understanding of how this thesis aims to fill a research gap and make an original contribution to knowledge.

3.2. Part 1: Climate policy

Climate policy, debates and conflicts inform and influence media coverage of climate change. The first part of this section discusses central studies that investigate the dynamics between countries and regions that have shaped international negotiations, debates, and conflicts about climate policy. The studies are supplemented with passages from official conventions and resolutions passed by the UN. The second part of this section discusses studies focusing on

media coverage of international relations and climate policy and relates them to the concepts introduced in the first section.

3.2.1. North-South dynamics

A summary of key milestones, negotiations, and conflicts in the history of climate policy and international cooperation can only give a rough understanding of the complex underlying global, intergovernmental dynamics. National governments and interest groups within countries have their own views on how climate policy has evolved since the 1970s and there is no single story to be told. In a study concerning public communication on climate change and climate policy, Schmidt (2016) identified two areas of conflict that underlie international cooperation with regard to climate policy: (1) First, ideas about the character of international cooperation differ, especially regarding the extent of supranational competence and mechanisms used to enforce obligations upon nation states. This idea is connected to the question of appropriate climate policy as well as finding suitable decision-making processes. (2) Second, there is prevailing disagreement about burden sharing. This entails questions about shared responsibilities in climate protection strategies and costs for adaptation strategies.

Referring to Schmidt's (2016) first point, the question about the nature of international cooperation is addressed in the United Nations Framework Convention for Climate Change (UNFCCC) which presents the fundamental convention for international climate policy. The Preamble of the UNFCCC published in 1992 acknowledges:

> The global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions.
> (2)

Generally, the enforcement of the UNFCCC depends on the participation of all member states of the UN. It values national sovereignty while at the same time referring to the idea that internationally accepted agreements are needed to tackle the global challenge of climate change. In theory, it is generally agreed between most countries that combating climate change is "a common responsibility of all states and that states' individual responsibilities should be differentiated" (Brunnée & Streck 2013: 590). The principle of "common but differentiated responsibilities and respective capabilities" (CBDR-RC) (UNFCCC 1992: Art. 3, paragraph 1) entails a shared responsibility for all parties. However, national contributions differ depending on a country's emissions and on its capability to fund solution strategies. Back then, the

UNFCCC divided the world into two categories – developed and developing countries – to distribute responsibilities fairly. The initial idea behind the CBDR-RC principle was to make industrialised countries take responsibility for past emissions and to commit to a drastic reduction in the future.

In practice, however, interpretations of shared responsibilities diverge, as included in Schmidt's (2016) second point: Already in the early stages of international cooperation in climate policy developing countries understood the principle of CBDR-RC to be measured according to a country's past emissions and insisted on a clear differentiation between developed and developing countries. According to studies by Okereke and Coventry (2016) and Brunnée and Streck (2013), countries classed as developing have had the tendency to emphasise the *differentiated responsibility* to justify exceptions from tough obligations and stress the leadership role of the countries classed as developed which include financial and technical assistance. In contrast, European countries, the US and Australia have resisted "the notion of historic responsibility as well as rigid distinctions between North and South" (Brunnée & Streck 2013: 590) and would rather focus on current and future contributions to global emissions. Their emphasis lies on the common responsibility and the respective capabilities which is why they demand shared efforts from all countries according to their capabilities. Ever since newly industrialised and emerging countries such as India and China have increased their capabilities and started to contribute more to global emissions, some developed countries requested them to take on more responsibilities. These changing global dynamics led to diverging interpretations of the CBDR-RC principle. In short, most developing countries refer to a historical, moral "responsibility to pay" (Mickelson 2000: 70), while most developed countries see it as a relative and evolving "ability to pay" (ibid.).

In this context, Hoffmann (2005) differentiates between a "North-first variant" (14) and a "universal commitment variant" (ibid.) of the CBDR-RC principle and looks at the way in which the dominant interpretation has changed since the introduction of the Convention. According to Hoffmann's (2005) analysis, parts of the EU and many countries of the Global South follow the "North-first variant". The US, on the other side, try to act as a "norm entrepreneur" (ibid.: 163) and change this perception which "has caused instability at the foundation of the global governance of climate change" (ibid.). The "universal commitment variant" (ibid.: 166) can also be found in the Copenhagen Accord, even though there are separate lists and different regulations for industrialised, threshold, and developing countries.

The principle of CBDR-RC "has shaped the evolution of the climate regime" (Brunnée & Streck 2013: 589). To date, it remains relevant in negotiations. However, with shifting global

dynamics, the interpretations of what is perceived as a fair distribution of responsibility are changing. Over time, the domestic political targets have become less ambitious and soon no longer matched the amounts that were needed to prevent fatal consequences. A more multifaceted and nuanced understanding has replaced the once "binary understanding of the CBDRC in the Kyoto Protocol" (ibid.) where there was a clear line between countries classed as developed and countries referred to as developing.

In climate policy discussions, the distinction between developed and developing countries has been at the core of issues surrounding international cooperation which shows that such a separation is deeply engrained in the interpretation of climate policy debates. Almost thirty years after the adoption of the UNFCCC, omitted references to the CBDR-RC principle, historical responsibilities, and Annex I/non-Annex I Parties in the Durban and Doha decisions reveal changes in modern climate change negotiations. Already in the early 2010s, more and more countries have spoken out in favour of "an interpretation of CBDRC that would go beyond the simple distinction between developed and developing countries" (Brunnée & Streck 2013: 599). Although there is still a divide, there is no longer a clear line between Global North and Global South, but a "complex pattern of alliances collaborating and opposing each other depending on their particular interests, constraints, and policy priorities" (ibid.: 603). Thus, the binary understanding of CBDR-RC as used in the Kyoto Protocol has been overtaken by a more nuanced understanding and sometimes even opposing views that try to account for the complex and partly shifting global dynamics.

3.2.2. Climate policy in the media

Climate policy and international negotiations are communicated largely through the media. Journalists function as gatekeepers and interpret the developments of climate policy negotiations on the world stage and in the national context. Pan, Opgenhaffen and van Grop (2019) describe media as "the nexus of policies and the public" (521) with media representation of climate change affecting people's opinion about certain climate policies. The most mediatised discussions about climate change and climate policy take place at the meetings organised by the UNFCCC which are accompanied by the media (Singh 2015). Already since the first World Climate Conference in 1979, policy events have attracted increasing media attention with peaks in coverage surrounding COP15 in Copenhagen (2009) and COP21 in Paris (2015) (Painter & Schäfer 2018). Journalists do not merely narrate what happens at the conferences; they play a crucial part in shaping the audience's perception of climate policy and thereby influencing public discourse.

Due to the close connection between climate change and politics, it is interesting to focus on climate policy in general and climate justice in particular, and their presentation in public debates. Lyytimäki (2011), for example, conducted a study on the role of media coverage for climate policy with a focus on Finland and found that, at the time, "the role of the media has been largely neglected in studies focusing on the challenges in mainstreaming of climate policies" (651). Simon Billett (2010) studied the media coverage of English-language newspapers in India and found references to political frames that present a divide between the Global North and Global South. Billett (2010) reported that climate change in Indian newspapers is framed along a "risk-responsibility divide" (1) using the political frame of risk for India and responsibility of the Global North (15). A few other studies (see e.g., Hilgartner & Bosk 1988, Carvalho & Burgess 2005, Petersen, Heinrichs & Peters 2010) stress the key role of the media to present, negotiate and reassess climate policy. Media can put climate policy on the public agenda and raise awareness for ongoing negotiations, conflicts and measures or they can neglect certain parts of the debate and thereby frame developments as breakthroughs and others as failures. Reusswig (2010) argues that an increase in climate change coverage since 2006 is due to a "mainstreaming" (45) of climate change in comparison to other domains. The author adds that it has "evolved as a cross-cutting policy issue" (ibid.), that is no longer just part of the scientific context but has evolved to an established topic in the media (see also Lyytimäki 2011, Schmidt, Ivanova & Schäfer 2013). The connection between climate change as a primarily scientific issue and increasing media focus on climate policy led to a politicisation of science. Pan, Opgenhaffen and van Grop (2019) refer to climate change as one of the "most prominent and politicized scientific issues" (520).

Only few publications investigate normative conflicts or do research on media coverage of the moral questions in climate policy (exceptions are e.g., Gregorio et al. 2013, Laksa 2014). And yet some studies point to conflicts about a sense of ethics in media reporting on climate policy. Kuhlmann (1999), for example, already reported that statements in German media about climate protection are often supported by normative arguments. In a comparative study between different countries on the media coverage of COP13 in Bali (2007), Caillaud, Kalampalikis and Flick (2012) found a "moral anchoring of the climate question" (375) in German media, as well as less explicit references to moral and ethics of climate protection in French media reporting.

International dynamics are influenced by the introduction of official international treaties and agreements. As stated above, the media present a key player in interpreting official resolutions and transmitting information surrounding climate policy debates into the public sphere. The present research project does not focus on climate policy exclusively. It tries to give

an adequate amount of attention to the coverage of climate policy in the selected media outlets as the reporting of climate policy reflects the perception of global dynamics. This section functions as a base to better understand some of the global dynamics in climate policy and their presentation in the media.

3.3. Part 2: Climate change reporting

3.3.1. Emergence of a research area

This section of the literature review aims to give a broad overview of the research field on climate change communication by discussing some of the key studies and developments. The research area of climate change reporting has evolved and expanded mostly since the beginning of the 21st century. Between progress in scientific research, discussions on the international stage about climate policy and national differences in media attention, studies on climate change communication in general and media reporting in particular contributed to creating a multifaceted research area. Since the emergence of this research field in the 1990s, multiple sub-categories have evolved. In order to obtain a better understanding of the discipline's development and to position this project within the research field, the following section presents some of the central topics and findings.

The media, as well as individual journalists, play key roles in shaping the public perception of climate change and influence public and political discourse. At the same time, scientific findings are oftentimes highly complex, abstract, and sometimes even uncertain. For this reason, media function as a translator and transmitter of scientific knowledge, policy decisions and public debates, and thereby contribute to the understanding and transmission of climate change to the public (von Storch 2009).

In the early years of the research field, Jacquelin Burgess (1990) made an important contribution by creating foundational conceptual work in relation to media production and consumption of environmental topics. Burgess (ibid.) argues that the media present "an integral part of a complex cultural process through which environmental meanings are produced and consumed" (139). Published in the early years of research on environmental communication, the paper presented a theoretical framework using perspectives developed in cultural studies to help expand research in this area and to enhance the understanding of media discourses about "human-environmental relations" (ibid.). Additionally, Burgess (ibid.) referred to an emerging need for further research interrogating the connections between media, science, governance, and civil society. Almost three decades later, Comfort and Park (2018) published a systematic

review of the literature in the field of environmental communication. In their article, Comfort and Park (2018) showed that the field has attracted increasing attention in recent decades and has reached several milestones since the 1990s. While Burgess (1990) did not focus on climate change specifically, new approaches, methods and research questions emerged under the "umbrella of media and climate change" (Boykoff 2011: 50) at the beginning of the 21st century. Along with the first international climate summits, media coverage of climate change grew in the 1980s. This led to an increase in scholarly attention of media representation of climate change in the 1990s with a focus on media products from North America, Europe, Australia, and New Zealand, largely neglecting coverage in Asia and Africa. Only in the past decade has research expanded to study media coverage in countries other than North America and Europe. For example, Tagbo (2010) analysed media coverage of climate change in Africa focusing on newspaper coverage in Nigeria and South Africa. She found that at the time climate change was a "relatively new subject in many African media" (ibid.: 36), hinting at a need to narrow the gap between science and journalism. Climate change reporting in the African context will be referred to in more detail in the third part of the literature review.

There are several meta-analyses that evaluated the growth of research interest in climate change-related media and communication processes (see e.g., Comfort & Park 2018, Schäfer & Schlichting 2014, Schäfer & Painter 2020). While there are a few foundational articles that reflect on certain aspects of the research area – such as Susanne C. Moser's (2010) article which traces the history of climate change communication or Anabela Carvalho's (2010) article describing the political aspects of media coverage – Schäfer and Schlichting (2014) gave a systematic review of the research field with a meta-analysis of 133 studies. Their analysis showed that research activity has increased not only in quantity but also broadened its scope to include more countries, various types of media outlets, and different methodological approaches (ibid.). However, Schäfer and Schlichting (ibid.) added that despite a slow diversification, there was still a prevailing pattern wherein Western countries and print media have been the dominant research objectives. The discipline remained at a moderate level until 2008 when "annual publication numbers rose considerably" (ibid.: 148). The following growth of scholarly attention on climate change communication correlates with an increase in media attention on this issue (Boykoff 2011, Schäfer, Ivanova & Schmidt 2011). Since media coverage has become more diverse, research objects and methodologies diversified at the same time.

Schäfer and Schlichting (2014) and Schäfer and Painter (2020) present a good starting point for the review of existing studies and literature on climate change reporting and will be referred to throughout the following sections. Apart from meta-analyses, there have been

numerous studies carried out on the content (see e.g., Boykoff 2008, Carvalho 2007, Doyle 2007, Olausson 2009) and the production (see e.g., Berglez 2011, Brüggemann & Engesser 2013) of climate change news. Both areas along with some of the key findings as well as possible research gaps are addressed in the following sections.

3.3.2. Development of climate change reporting over time

There are a few studies that specifically analyse the development of climate change reporting over a period of time focusing either on one country or taking a comparative approach including multiple countries. Taking a closer look at the history of climate change coverage can facilitate the understanding of current media narratives and can help identify "moments of critical discourse that have shaped ongoing climate storylines" (Boykoff 2011: 30). In the following, findings of central studies in this area are presented to track the development of media attention on climate change and thereby understand the circumstances that may have initiated current developments.

Multiple studies consider the historical development of the level of climate change coverage and most studies confirm the overarching trend that media coverage has increased over time (see e.g., Boykoff 2011, Schmidt 2016, Grundmann & Krishnamurthy 2010). However, in comparison to other news topics, climate change still receives comparably less attention from journalists and news organisations and is mostly reported in connection to natural disasters, extreme weather events or international conventions on climate policy (Comfort, Tandoc & Gruszczynski 2020). Most studies identified peaks in the 1990s, between 2006 and 2007 and around COP15 at the end of 2009. The development of media reporting on climate change over time has been studied for industrialised nations such as Germany (Neverla & Schäfer 2010), the US (Boykoff & Boykoff 2007), the UK (Doulton & Brown 2009), Sweden (Olausson 2009) and Japan (Sampei & Aoyagi-Usui 2009). Even though there are less studies that cover an extended period of time for countries in the Global South, they still observed similar trends. An increase in media coverage began a little later, between the 2000s and 2010s (see e.g., Billett 2010, Boykoff 2010, Comfort, Tandoc & Gruszczynski 2020).

The studies show a trend towards an increase in climate change coverage which fluctuates depending on events such as the annual COP meetings or extreme weather events. There were peaks in media attention, for example, when Al Gore released his documentary "An Inconvenient Truth" in 2006, when the IPCC published its Fourth Assessment Report in 2007, or when COP15 was held in Copenhagen in 2009 (Gupta 2010).

The following sections elaborate on the stages of climate change reporting with reference to central studies. Most studies that focus on the development of climate change reporting on a broader scale, and not just a short period of time, were conducted in the mid-2010s. For this reason, research on more recent developments is most likely currently being conducted and is therefore not included in this section.

3.3.2.1. Early developments

The French physicist Jean-Baptiste Joseph Fourier, the British scientist John Tyndall, and the Swedish physicist Svante Arrhenius were the first to publicly refer to connections between changing climatic conditions and carbon emissions in the late 19th century (Boykoff 2011). At that time, it was not part of the media discourse. Most scholars, including for example Neverla and Schäfer (2012), see the 1950s as the starting point for media attention on climate change. Boykoff and Roberts (2007) refer to the 1930s as the time when the media first focused on climate change. In a background paper for the United Nations Development Programme, Boykoff and Roberts (ibid.) surveyed how media coverage has shaped discourse "at the interface of climate science and policy". In this context, they also give a brief overview of the history of media and climate change. In the 1950s, the human contribution to climate change was first referenced in mainstream media. One popular article in this context was written by Waldemar Kaempffert (1956) for *The New York Times*:

> Today more carbon dioxide is being generated by man's technological processes than by volcanoes, geysers and hot springs. Every century man is increasing the carbon dioxide content of the atmosphere by 30 percent – that is, at the rate of 1.1°C in a century. It may be a chance coincidence that the average temperature of the world since 1900 has risen by about this rate. But the possibility that man had a hand in the rise cannot be ignored.
> (191)

Apart from this article, Boykoff and Roberts (2007) observed that in the following three decades anthropogenic climate change was covered rather sparsely by the media and pieces like Kaempffert's (1956) were still rare instances in the mainstream media. Boykoff (2011: 47) makes a similar point and stresses that in the following three decades, media coverage of climate change was still sparse, though the issue slowly became part of the public discourse.

This shows that in the early days, media communication was mostly focused on scientific findings and the publication of reports such as those published by the IPCC, extreme weather events and high-profile policy meetings or conferences (Weart 2003, Boykoff & Roberts 2007, Moser 2010). Boykoff (2011: 42) points out that "these early media representations demonstrate the deep roots of links that have been made between weather and

climate over time". Instead of referring to the complex scientific components contributing to climate change, media messages were often framed by using connections between weather and climate as "logical bridges" (ibid.: 43) to explain long-term climate change. Following on from that, climate change communication moved beyond mere science and policy issues and "has opened up the nature of public discourse" (Moser 2010: 32).

3.3.2.2. The 1970s to late 1990s

At the end of the 1970s, scientific conferences on climate change started to become more prominent in the mainstream media. In 1979, the first World Climate Conference was held in Geneva which also led to an increase in the media coverage of climate science in the early 1980s (Boykoff 2011). Towards the end of the decade, media attention for climate science and governance had increased substantially especially in Western Europe and North America (see e.g., Carvalho & Burgess 2005). Boykoff (2011) observed that "ecological, political and scientific factors intersected and dynamically brought the issue of climate change clearly onto the public agenda" (50).

With climate policy taking shape in the 1980s, "media coverage of climate change science and policy increased dramatically" (Boykoff & Roberts 2007: 5). A connection between media coverage of climate change and developments in climate policy prevailed in the 1900s and 2000s. Boykoff and Roberts (ibid.) noted peaks in Western Europe and North America especially during the publications of the IPCC's Assessment Reports in 1990, 1995 and 2001, and during the UNFCCC in 1992 and COP3 in Kyoto in 1997.

One event that generated substantial media coverage and "became a spectacle that signified solidified scientific concern for anthropogenic climate change" (Boykoff & Roberts 2007: 5) was when NASA scientist James Hansen testified in front of the US Congress in 1988. Hansen testified that he was fairly certain that warmer temperatures were not only due to a natural variation but also caused by burning fossil fuels. In the same year, the summer was marked by high temperatures and drought throughout North America which sensitised the media and offered a suitable news hook to refer to a heightened public concern for this issue at the time (ibid.). However, this study mostly looked at media attention in the Global North, specifically the US, and cannot account for developments in other parts of the world.

Referring back to Moser (2010), her paper "Communicating climate change: history, challenges, process and future directions" includes a historical overview of climate change communication. Moser (ibid.) describes the 1980s as the point when anthropogenic climate change emerged on the public agenda. However, at this point, "communication was relatively

narrowly focused on scientific findings and synthesis reports" (ibid.: 32), such as the IPCC's Assessment Reports and international policy meetings on climate change. In the communication of science and climate policy, media outlets were largely influenced by the "'balancing' norm" (ibid.) and presented climate change discourse "as a 'battle' over unproven science between two sides" (ibid.). The effect of creating a 'false balance' in the media started to subside in the mid-2000s after scientific consensus had become clearer and was "no longer just a match between 'duelling experts'" (ibid,). Since then, journalistic practices have developed further and have become more precise. According to Moser (ibid.), however, the sense of urgency and concern still differed between populations, and the public understanding of the complex causes and fatal impacts remained limited.

3.3.2.3. The 2000s

In his book "Who speaks for the climate?", Boykoff (2011) illustrates the development of world newspaper coverage of climate change over time in a graph where he tracked "newspaper coverage of climate change and global warming in 50 newspapers across 20 countries and 6 continents over a 7-year period (January 2004 – November 2010)" (20). On the one hand, Boykoff's (2010) investigation of the development of "world newspaper coverage" (20) can be a useful starting point to understand when and why peaks occurred in the 2000s. On the other hand, the emphases put on continents and countries regarding the newspaper selection is not distributed equally across the different parts of the world. As part of the focus of this thesis addresses African countries, it is striking that Boykoff (2011) only includes two South African outlets (*Business Day*, *Financial Mail*) in his study to account for an entire continent. It is presumed that this limited focus is the reason why Boykoff (ibid.: 22) did not include a separate illustration of the media attention in Africa in the graph. In reference to Africa, Boykoff (ibid.) notes that "there remained a relatively low number of stories on climate change or global warming in the regions of South America and Africa throughout this period" (24). This, then, "points to a critical regional 'information gap' in reporting on these issues, and relates to capacity issues and support for reporters in these regions and countries (developing and poorer regions/countries)" (ibid.). However, the explanatory power based on empirical evidence remains limited for the African continent.

Following Boykoff's (2011) study, Schmidt, Ivanova and Schäfer (2013) analysed media attention for climate change in a comparative analysis of newspaper coverage in 27 countries. Their sample included countries "that have committed themselves to greenhouse gas emission reductions under the Kyoto Protocol" (ibid.: 1233) like France and Germany as well

as three African countries that are vulnerable to or already affected by the consequences of climate change such as Algeria, Namibia, and South Africa. Like Boykoff (2011), Schmidt, Ivanova and Schäfer (2013) visualise their data in separate graphs for each country. There are noticeable country differences indicating disparities in the development of national media attention for climate change. Nonetheless, Schmidt, Ivanova and Schäfer (ibid.) observe an overarching trend: "While all countries exhibit growing media attention, they did so to varying degrees." (1243) For example, Indonesia (Jakarta Post) and Australia (Sydney Morning Herald, The Australian) present the highest increase with an onset in 2004 and a peak in the late 2008/early 2009 for Indonesia and in 2009 for Australia.

Both studies by Boykoff (2011) and Schmidt, Ivanova and Schäfer (2013) focus on countries from multiple parts of the world with varying emphases on different regions and they still reveal similar trends in national media attention for climate change in the 2000s. Apart from an increase in media coverage, both studies identify peaks in the mid-2000s and a more prominent peak in 2009. Boykoff's (2011) graph shows peaks in 2005, 2007 and at the end of 2009. In 2005, international media coverage connected the impacts of Hurricane Katrina in August 2005 in the Gulf Coast of the US with climate change, explaining a peak in 2005 (ibid.). Another peak occurred in early 2007 which can be attributed to the publication of the IPCC's Fourth Assessment Report. Additionally, the ongoing discussion about Al Gore's documentary "An Inconvenient Truth", released in 2006, "provided news hooks into climate-change-related stories in Europe, North America and Oceania" (ibid.: 20). Following a peak in 2007, Boykoff's graph shows a stagnation period from mid-2007 until the end of 2009 for a variety of reasons. According to Boykoff (ibid.), one reason was the financial crisis and the fact that "media attention on the global economic recession displaced/shrank the news hole for climate stories, where immediate worries regarding job security and economic well-being dominated the news throughout 2008" (20).

Boykoff (2011) noticed that "climate news seemingly flooded the public arena" (20) at the end of 2009. In 2009, coverage was about five times higher compared to the turn of the millennium and included topics from the anthropogenic influence on the climate, the question about effective ways to mitigate greenhouse gas emissions and other market mechanisms (ibid.). This trend is supported by Schmidt, Ivanova and Schäfer (2013) and was especially prominent in Australia and Indonesia. Apart from a general interest in climate change, the peak in coverage had two main causes: A leaking of scientific documents led to what is now known as the 'Climategate' scandal and was followed by the "highly anticipated" (Boykoff 2011: 20) negotiations at COP15 in Copenhagen.

In November 2009, the media reported on what soon became known as 'Climategate' after thousands of documents and emails were leaked from the Climate Research Unit (CRU) at the University of East Anglia (UEA) and posted on the Internet. The scandal was not about the hacking of the server, but mostly about "how some of these emails raised questions about the integrity of scientific practices" (Boykoff 2011: 35). The term 'Climategate' was first used by James Delingpole (2009) in *The Telegraph* blog. The science behind the causes and possible fatal effects of climate change were hardly covered by the media at the time. Media attention barely focused on the scientific side of climate change or climate policy, instead scientists and climate science were scandalised and dramatized.

The excitement surrounding 'Climategate' coincided with the meeting of COP15 in Copenhagen which was a highly anticipated event because one of the objectives was to negotiate a successor treaty to the Kyoto Protocol. Boykoff (2011) observed that "media attention swiftly shifted to 'Climategate'" asking "how the recent conflict [...] strained these international negotiations" (35). The Parties failed to agree on new binding targets to reduce greenhouse gas emissions and Boykoff (ibid.) noted that "the combination of 'Climategate' and COP15 failures provided news hooks aplenty for continued stories on climate change" (36). And while it is not clear "how much coverage is 'needed' to raise and sustain doubts or uncertainty" (ibid.: 37), both events set the tone for following climate change coverage with regards to climate science and governance. Boykoff's (ibid.) graph shows that global climate change coverage decreased after COP15 in December 2009. About half of the countries analysed by Schmidt, Ivanova and Schäfer (2013) show similar trends.

3.3.2.4. General trends

In the early and mid-2010s, most findings of climate change-related studies confirm that media coverage of climate change has increased *globally* in the 2000s, however, the level of coverage was still low compared to other topics (Neverla & Schäfer 2012). Furthermore, Moser (2010) observed that since the late 2000s climate change coverage had gone beyond the existential question of anthropogenic climate change, though scepticism in society prevailed. The development that climate change coverage started to go beyond mere policy and science issues initiated the creation of media frames and communication strategies. Thus, already in 2010, Moser (ibid.) noted, "the issue of climate change now penetrates society more deeply than just a few years ago" (32). Reusswig (2010) points to a similar development in his study about climate change discourse where he argues that an increase in climate change coverage since 2006 is due to a "mainstreaming" (45) of climate change in the media.

To sum up, studies on the development of media attention on climate change reveal similar results and help understand recent trends in climate change reporting. Even though the studies cannot be used to make general claims, not least because they show a tendency to focus more on countries from the Global North, some studies still include a variety of countries allowing for a comparison between national and international developments. The mutual influence between global and national is partly reflected in studies on media attention: The peaks that are identified in the studies occur in multiple countries and align with international events that are then interpreted using national media frames. The overarching trends that were identified in this section of the review are useful in order to understand current developments in media coverage of climate change and how climate change went from being a scientific concept to a controversy and dramatised news story, to a topic that is now established on the media agenda.

3.3.3. Content

3.3.3.1. Themes and narratives

Most studies that analyse climate change in the media employ the method of content analysis (see e.g., Boykoff 2008, 2010, Boykoff & Boykoff 2004, 2007, Doulton & Brown 2009, Olausson 2009, Neverla & Schäfer 2012). Dominant focus points of these studies are topics, frames, and characteristics of media coverage along with the journalistic practices of communicating scientific findings. In this context, scholars aim to investigate how different media outlets and countries report on climate change. Researchers identified recurring patterns in climate change reporting, as summarised and discussed in the following for the purpose of presenting a point of orientation for this project.

First, media often connect climate change to regional weather changes or extreme weather events to establish a national or local point of reference. Content analyses, for example, by Weingart, Engels and Pansegrau (2000), Carvalho and Burgess (2005), as well as Boykoff and Boykoff (2007) show how journalists use current events as an orientation and create connections between extreme weather events or natural catastrophes and climate change risks in different countries. In this respect, the creation of reference points through contextualisation, personalisation, regionalisation, and event-orientation appears to be a typical journalistic practice and influences the decisions when and how climate change becomes part of the media coverage (Neverla & Trümper 2012).

This connection, however, exceeds the scientific state of knowledge and cannot be validated for every extreme weather event. Nonetheless, journalists use these events to connect the abstract scientific concept of climate change to concrete events with a specific time frame and location. For example, *CNN* published an article with the title "Climate change makes storms like Dorian more dangerous" in 2019, explicitly connecting climate change to specific extreme weather events (Miller 2019). Relying on this strategy can be counterproductive because conversely, this means that particularly cold winters can be used as an argument against the existence of global warming. Eventually, media messages of this character can result in a distorted perception of climate change (see e.g., Weber 2008).

Second, studies reveal a trend towards a domestication of climate change where media outlets report about climate change according to national norms and policies (Neverla & Schäfer 2012). Multiple studies observed that climate change is mostly reported in connection to national political or environmental issues. For example, studies claimed that the climate debate in India (Billett 2010) or Bangladesh (Dove & Khan 1995) is embedded in postcolonial discourse. Instead of relying on quantitative, absolute numbers, national contexts and concepts can give interesting insights into the workings of journalistic practices in climate change reporting.

Third, only few studies find a link between climate journalism and the human aspect of climate change in the reporting. For example, Carvalho, van Wessel and Maeseele (2017) investigate the intersections between communication practices and political engagement with climate change by touching upon the role of climate justice. Boykoff (2008) explains a perceived neglect of climate justice and its complex interactions by referring to journalistic practices that favour simpler topics. In contrast to that, political events or natural disasters are perceived as more straightforward and easier to transmit (Boykoff 2008). Additionally, Doyle (2011) argues that "one of the difficulties in engaging people with climate change is due to its historical framing as an environmental issue, which has led to a separation of humans and culture from the environment" (3). In this context, Doyle (ibid.) stresses the importance of shifting news frames more towards climate justice:

> If climate change is framed as an issue of social justice, then the human costs of climate change as a result of the unequal distribution of, and access, to, natural resources, are brought to the fore. Framing climate change as a humanitarian and social justice issue constitutes a moral imperative to act. (6)

Finally, science in general and new climate change-related findings in particular have been identified as commonly used news hooks. Journalists often refer to scientific arguments and

positions, for example with reference to the IPCC Assessment Reports, and try to convey them in a comprehensible way (see e.g., Engesser & Brüggemann 2015, Peters & Heinrichs 2008, Schmidt, Ivanova & Schäfer 2013). At the same time, studies have shown that journalists include references to scientific uncertainty. Especially in the past decade, studies (see e.g., Ashe 2013, Painter 2013) identified the 'scientific uncertainty frame' in media reporting that questions the reliability of science. The ways in which journalists interpret and communicate scientific findings about climate change varies greatly, and different studies highlight different characteristics of journalistic practices: Schmidt, Ivanova and Schäfer (2013) and Schäfer (2016) observed that media coverage frequently focuses on the political discussion about appropriate climate policy instead of scientific findings.

This section includes some studies as examples of research on the themes and narratives in climate change reporting. The discussion of themes and recurring patterns that scholars have identified in a variety of studies demonstrates the increasing scholarly attention on this topic. By now, there is a multitude of studies, and for this reason a detailed discussion of each study would exceed the scope of this section.

3.3.3.2. News values

A general understanding in journalism studies is that media do not simply mirror, for example, scientific findings but reconstruct the messages in their reporting. A series of choices are involved in creating the media image of climate change in various media outlets including questions of topic selection, distribution of emphases, and choices of speakers. These choices are directed by "the perceived interest and social impact of a topic, as well as other 'news values,' economic considerations and editorial lines" (Carvalho 2007: 224). This awareness of mechanisms and transformative logic in media reporting includes the investigation of news values in climate change reporting and the representation of environmental issues.

The theory of news values aims to conceptualise and summarise journalistic selection patterns and realisation strategies, based on the theory by Galtung and Ruge (1965) and evaluated further by Harcup and O'Neill (2001 & 2017). The investigation of journalistic selection logics and its relation to news values has become an established field of research in journalism studies. The basic idea behind this research is that journalists rate topics and events according to specific characteristics and evaluate the relevance for their audiences (Scheufele 2003, Blöbaum 2004, Neverla & Trümper 2012). The characteristics that are attributed to topics and events are referred to as news values, which Neverla and Trümper (2012) describe as a navigation system for journalists.

Climate change is a highly abstract and complex concept breaking with journalistic practices of publishing comprehensible content relevant for the respective audience. A few studies have specifically focused their attention on the connection between news values and climate change reporting. According to Neverla and Trümper (2012), scientific news is usually attributed a rather low news value and especially lay-audiences rate scientific topics with lower relevance. Thus, climate change as a primarily scientific topic is perceived difficult to convey (ibid.). Smith (2005) offers evidence for this assumption in his study where he interviewed journalists and other experts. In his research, Smith (ibid.) found that the journalistic presentation of climate change is frequently realised in a visual-narrative and emotional format to make it more appealing to the audience. For example, one technique to generate interesting news stories is to create a national or regional connection between extreme weather events and climate change, as explained in the previous section. In Smith's study (ibid.), his interview partners referred to the abstract nature of climate change as a reason for this connection. Peters and Heinrichs (2008) present similar results showing how journalists try to connect abstract scientific findings with concrete experiences of their audience. Similarly, Peters and Heinrichs (ibid.) found that some of the main techniques to contextualise climate change are the connection to current events, personalisation as well as dramatization with reference to scientific and political controversy (ibid.).

Further, Dahl and Fløttum (2017) give generic examples of how ten commonly used news values can be realised verbally or visually in climate change related news stories. Some examples include "Negativity: Climate change a threat to security, food and humankind", "Personalisation: Climate change: the poor will suffer most" or "Proximity: Climate change will make UK weather too wet and too dry" (ibid.: 126). According to their reporting practices, media outlets can choose different techniques to make the issue of climate change newsworthy to their audience (ibid.).

3.3.4. Challenges

Several studies (see e.g., Moser 2010, Berglez 2011, Brüggemann & Engesser 2017) point out that reporting climate change can present a challenge for journalists. It lies outside established media logics which usually provide a structure for the journalistic presentation of an issue (Berglez 2011). Moser (2010) suggests that if communicators of climate change had used communication and behavioural research to curate their messages more effectively from the beginning, public understanding could have been improved and miscommunication reduced. In the early stages, scientists and environmentalists were the main communicators of climate

change and there was little to no exchange between the communicators and the receivers of the messages (Moser 2010). Several challenges in the reporting of climate change already existed in the early days when the issue gradually began to appear on the public agenda. Some of these challenges have since then been identified in academic research.

3.3.4.1. Invisible causes and distant impacts

Moser (2010) refers to "the temporal and often geographic distance between cause and effect" (33) as one of the challenges in climate change reporting. The impacts of greenhouse gas emissions are not immediately visible or noticeable and this results in a lack of perceived immediacy. Individual action and emissions seem relatively small by themselves. Only "cumulative impact on the atmosphere" (ibid.: 33) results in detectable changes in the weather and climatic patterns. Climate change is perceived as a distant issue that must compete for attention with social and political issues that seem more pressing and immediate. In this context, Moser (ibid.) refers to psychological research that shows how immediate experiences and needs are attributed with a higher importance than abstract data and scenarios. This way, a particularly cold winter can be used as an argument against global warming. Similarly, delayed or absent effects of mitigation action can be used to discourage people in their motivation to mitigate global warming. Thus, it can be difficult to understand the links between taking action and experiencing progress in the mitigation of climate change.

3.3.4.2. Space-time scale

Climate change is described as a global and far-ranging phenomenon with an extensive space-time scale that is difficult to grasp (Neverla & Schäfer 2012). The geographical and temporal scales of climate change exceed existing categories of journalistic coverage. First, the time frame of climate change cannot be limited to a specific point in time but stretches over decades and even centuries (Brüggemann & Engesser 2017). A common journalistic practice is to section world news into short-term events, either final or as a series of episodic stories. This, however, is only partly feasible in climate change reporting as it is an ongoing process. Second, journalistic logics usually distinguish between the geographic categories of local, national, and international, with national borders presenting a particularly important category for journalistic coverage. These categorisations, however, are irrelevant for the impacts of climate change (ibid.: 2). A specific geographic categorisation is not possible as climate change exceeds temporal and spatial borders.

3.3.4.3. Disconnection of modern humans from the environment

Apart from the invisibility, the lack of immediacy and the distant impacts, Moser (2010) claims that most modern, urbanised humans are disconnected from their physical environment and spend most of their time indoors or in "human-altered landscapes" (34). When people spend only little to no time in nature in an observing mode, subtle changes are difficult to notice. Additionally, there are different protection measures such as shoreline protection that can further reduce people's exposure to nature (ibid.). The individual experience, however, depends greatly on the personal location and it must be added that Susanne Moser is a researcher from the US. These observations are difficult to generalise and do not account for people's experiences in other parts of the world.

3.3.4.4. Complexity and uncertainty

Adding to the previous point, even for scientists climate change – in all its complexity – still entails several uncertainties and it is still not predictable. There are several reasons for this uncertainty such as a "lack of data, lack of adequate theoretical understanding of environmental system interactions, the unavoidable inadequacy of representing nature's complexity in models" (Moser 2010: 35). There is an increasing number of climate models which constantly add new factors and thereby become more complex. One example are the climate models created by the British Hadley Centre for Climate Prediction and Research. In the 1980s, their models included only the effects of clouds and ice; by now they have added water and precipitation, volcanoes, aerosols, biological processes in the ocean, plants and soil properties and more adding to its complexity (Heffernan 2010).

There are efforts to make scientific research more accessible through publications such as the IPCC. Still, uncertainty is used in political discourse to justify non-action and impede journalistic reporting. Moser (2010) suggests that those who are interested in maintaining the use of fossil-fuel deliberately enforce "a public perception of a lack of scientific consensus and greater uncertainty" (35). In contrast to the promotion of non-action, some scientists call for even more extensive action as they might have even underestimated the risk. Journalists find themselves in the middle of this field of tension having to navigate between uncertainty, complexity, and different interest groups.

3.3.4.5. Implications for journalism

The different challenges of climate change communication have implications for the way in which climate change is reported by the media. Journalism must deal with the uncertainties of a global issue where causes and effects are invisible and complex to describe. In all its complexity and uncertainty, climate change must compete for media attention with immediate challenges such as health care or education (Moser 2010). Neverla and Trümper (2012) label climate change as a cross-cutting issue that stretches over multiple resorts since it offers various angles for journalistic reporting. It is not only a science story, but it is also connected to political and economic as well as social questions and has to be assigned to a specific section or resort depending on the event or focus of the article (see e.g., Neverla & Trümper 2012, Hulme 2009, Brüggemann & Engesser 2017).

Olausson and Berglez (2014) refer to the importance of applying studies in media research to the practical reporting of climate change and demand to look at how "this collective knowledge about climate change and the media [can] contribute to various improvements in the field of media itself and among practitioners" (259). Ahern (2011) asks for a reduction of the prevailing theory-practice divide and tries to focus on the way in which media research on climate change can be useful for journalistic practices. Some media researchers (see e.g., Berglez 2011, Olausson 2013a) claim that journalistic techniques of framing, structure and style are too narrow to grasp the highly complex facets of climate change. Moser (2010), on the other hand, argues that one way to solve the issues could be to link the distant, complex, and uncertain characteristics of climate change to more concrete, immediate challenges. Instead of using abstract future scenarios, Moser (ibid.) suggests linking climate change to immediate national issues. In practice, however, this could potentially lead to a distorted image of climate change as previously explained. Moser (ibid.) adds that the complexity of climate change makes it necessary for journalists to use clear and simple metaphors, frames, imagery, and mental models to facilitate cognitive processing. Fink and Schudson (2014) found an expansion of context-based information of climate change in the US between the 1950s and the 2000s which shows that the media can slowly adapt to the challenges.

Furthermore, climate change reporting can be used to explore the concept of global journalism (see e.g., Berglez 2008, Berglez 2011). Journalism emerged with the development of the nation-state about 200 years ago (Olausson & Berglez 2014). Consequently, the focus on the own nation-state became an ideological framework and norm within the journalistic practice (Berglez & Olausson 2011). Since then, there has been a separation between national and international reporting only partly resolved by global news services (Olausson & Berglez 2014).

This conceptualisation, however, can be problematic in climate reporting as it exceeds borders and presents itself as a global challenge (e.g., Beck 1992). Berglez (2007) argues that a global focus is needed in modern day journalism that "makes it into an everyday routine to investigate how people and their actions, practices, problems, life conditions, etc., in different parts of the world are interrelated" (151). Dealing with the reality of globalisation can help journalists overcome the distinction between national and international news stories and approach issues from an international perspective (see e.g., Berglez 2008, Olausson 2013b, Olausson & Berglez 2014).

In this sense, Olausson and Berglez (2014) present the idea that climate change reporting can, to some extent, be regarded as a "forerunner in the development of high-quality journalism in general" (260). An approach like this could lead "the way in the development of a globally oriented journalism" (ibid.). While this discussion is rather theoretical, in practice, the development of sustainable and global journalism is dependent on resources of media houses and the willingness to devote time to the issue. In order to make it more appealing for media companies, the authors hint at the long-term benefits to adjust to an emerging "global logic of social reality" (ibid.) (see also Olausson 2013b). Thus, a more international or even global approach to social reality – or even realities, as there is not a single reality – can help produce more nuanced reporting of a complex issue like climate change.

3.3.5. Comparative Perspectives

Apart from studies that use content analyses to investigate individual, national media outlets, comparative approaches have received increasing scholarly attention, especially in the last decade (see e.g., Kunelius & Eide 2012, Comfort, Tandoc & Gruszczynski 2020, Schmidt, Ivanova & Schäfer 2013, Midttun et al. 2015, Broadbent, Sonnett & Zhengyi 2016, Vu et al. 2019, Pan, Opgenhaffen & van Grop 2019; see also Pearce et al. 2015). Comparative studies of climate change reporting have looked at differences and similarities between countries and have focused their attention on different aspects (for an overview, see Schäfer 2015) like the events that generate media attention (see e.g., Schmidt, Ivanova & Schäfer 2013), the sources journalists use (see e.g., Eide, Kunelius & Kumpu 2010), and the framing of journalistic coverage (see e.g., Painter 2011, Broadbent, Sonnett & Zhengyi 2016).

Climate change is a global phenomenon and has economic, social, and political implications that cross national borders. Because of this, it presents an interesting case for cross-cultural comparison to explore how different news cultures construct the same issue. Despite its global nature, it is perceived and contextualized depending on national norms and narratives

(Painter & Schäfer 2018: 40). In the process of 'domesticating' this global phenomenon (Eide & Kunelius 2010), journalism plays an important part, and a comparative study could reveal conflicts and similarities in the transnational communication of climate change. Despite a general increase in research on climate change reporting, Schäfer and Schlichting (2014) observed that only a fifth of the studies undertake comparative analyses. Painter and Schäfer (2018) add that there are still "significant gaps in our understanding of the similarities and differences between countries" (40). They explain that most scholarly attention has fallen upon mostly English-speaking countries in the Global North, while countries in Africa, South America and most parts of Asia have largely been neglected in the past (see e.g., Boykoff & Boykoff 2007, Boykoff 2008, Schäfer & Schlichting 2014, Broadbent, Sonnett & Zhengyi 2016; for some exceptions see e.g., Eide, Kunelius & Kumpu 2010, Billett 2010, Boykoff 2010, Schmidt, Ivanova & Schäfer 2013, Wozniak, Lück & Wessler 2015, Comfort, Tandoc & Gruszczynski 2020).

And even if there are several individual studies that analyse national media coverage of a single country, cross-cultural comparison of the findings can be difficult. Comparability is not always guaranteed, as methods, observation periods and measurements differ across the studies (Painter & Schäfer 2018). Furthermore, cultural contexts and social systems influence news production processes. In the following, recurring trends that have been observed in comparative studies are summarised in two sections focusing on global similarities and national differences respectively. Especially when it comes to similarities between comparative studies, some findings are familiar from previous sections, revealing recurring trends in comparative studies as well as in content analyses of individual countries.

3.3.5.1. Global similarities

Painter and Schäfer (2018) reviewed several comparative studies on climate change communication and summarised the approaches and results. Some of their findings are discussed in the following and complemented with references to other studies.

First, studies show that despite any national differences "climate change has received a considerable amount of media coverage globally since the mid-2000s" (Painter & Schäfer 2018: 40). Most studies observe a rise in published articles related to climate change from 2000-2005 (ibid.). Instead of a steady increase, the peaks in coverage in several countries coincide with decisions in national climate policy and international conferences like the annual COP meetings. As explained in section 3.3.2.3., comparative studies found that prominent peaks occurred between 2007 and 2009 (Schmidt, Ivanova & Schäfer 2013). The next peak was

observed around 2015, prompted by the discussions at COP21 and the introduction of the Paris Agreement.

Second, the increase in media coverage as well as the peaks in media attention suggest that "*media coverage is strongly event-driven and episodic, and that it focuses on similar events across countries*" (Painter & Schäfer 2018: 44, emphasis in original). Several studies (see e.g., Eide, Kunelius & Kumpu 2010, Schmidt, Ivanova & Schäfer 2013) support this observation and confirm that peaks in media coverage are frequently caused by particularly anticipated or controversial COPs or the publication of new IPCC Assessment Reports.

Third, comparative framing analyses discovered various similarities in the spectrum of news frames that are used in different countries (see e.g., Olausson 2009, O'Neill et al. 2015). For example, Lück, Wozniak and Wessler (2016) observe similar framing in coverage of UN conferences in relation to climate policy despite national news traditions in Germany, the US, Brazil, India, and South Africa. Similarly, Kunelius and Eide (2012) found transnational patterns in media coverage of the annual COP meetings with similarities in national news frames. Additionally, O'Neill et al. (2015) identified some of the most used frames in international comparison in connection to the IPCC Fifth Assessment Report (2014) including 'morality and ethics', 'health', 'disaster', 'opportunity', 'settled science' and 'uncertain science'. In a similar approach, Broadbent, Sonnett and Zhengyi (2016) identified some common frames: scientific frame, risk frame, moral or normative duty frame, and mitigation frame.

Forth, Painter and Schäfer (2018) observe a "societal turn" (44) in climate change reporting which means that journalists focus more on debates surrounding climate policy and its societal implications than on the progress in climate science. However, evidence for this assumption is more scarce compared to the evidence supporting observations mentioned directly above. For example, a content analysis by Ivanova (2012) looking at media coverage in Germany over long-time spans found that climate change coverage is less focused on science than it was in the 1990s and early 2000s and more focused on politics, the economy, and societal issues. However, this was no comparative study and cannot account for trends and developments in other countries or regions.

The review of cross-national comparative studies shows that there are "a number of important cross-national parallels" (Painter & Schäfer 2018: 52) in climate change reporting. These parallels include trends like framing climate change as a global issue, event-driven coverage concentrating on global political events such as the COPs, and – though with less evidence – a 'societal turn'" (ibid.) in which journalists devote more attention to political and

social issues than science. Despite these findings, there is room for further comparative research, especially with consideration of media coverage in Africa (Schäfer & Painter 2020).

3.3.5.2. National differences

Apart from similarities in international climate journalism, studies have revealed some differences in the national media coverage of climate change between countries. Painter and Schäfer (2018) point out that these differences can lie in "the volume of coverage, the amount of attention given to sceptics, the emphasis on different themes (away from set events or climate reports), and the degree of 'domestication'" (46f.). Additionally, there can be differences in national frames and narratives that are used in connection to climate change reporting. Painter and Schäfer (ibid.) found that major differences occur between countries in the Global North and countries in the Global South like the African continent which is disproportionately impacted by the climate crisis. According to Painter and Schäfer (ibid.), there are two major approaches to climate journalism discourse which can be divided along the categories of Global North and Global South (see also Comfort, Tandoc & Gruszczynski 2020). However, generalisations can be difficult to make since media reporting is quite diverse as such and not all countries have been studied to the same extent with similar research methods and equivalent accuracy.

There are international variations in the degree to which different media domesticate topics relating to climate change by giving space to national narratives and frames (Painter & Schäfer 2018). Previous studies have shown that climate journalism often reflects a national journalistic culture instead of a shared global issue. For example, Boykoff (2011) indicates in his study of world newspaper coverage of climate change/global warming from 2004 till 2010 that the number of stories in the regions of Africa and South America throughout this period remained relatively low. There seems to be a "regional 'information gap'" (ibid.: 24) in reporting on issues relating to climate change. Here, Boykoff (ibid.) assumes that "a diminished amount of coverage can be seen as detrimental to putting forward strong climate policies" (28). However, Boykoff (ibid.) does not look at country specific media coverage in detail to provide further, qualitative evidence for these assumptions.

A study by Brossard, Shanahan and McComas (2004) reveals differences in media attention and framing of climate change between US-American and French newspapers, with US-American media focusing more on conflict between politics and science. Further studies show that scepticism about climate science is specific to US-media reporting (Boykoff & Boykoff 2007) and rare in other countries (Painter 2011). Others investigated the relation

between journalism and science in the US and show that environmental journalism has increased since the 1960s (Friedman 2015), whereas science journalists are still relatively few in the US (Dunwoody 2014).

In contrast to several studies on US-American climate change reporting, there is still significantly less known about climate journalism in African countries. In 2016, Nwabueze and Egbra analysed the newspaper framing of climate change in Nigeria and Ghana. They observed that "the African continent is yet to take a strong posture toward influencing the climate change debate raging all over the world" (ibid.: 113). Similarly, Tagbo (2010) noted that the transfer between press agenda and public agenda when it comes to climate change issues is still pending. While this trend has started to shift, there are, however, still global imbalances in research designs and projects. For example, Broadbent, Sonnett and Zhengyi (2016) analysed 17 societies "lacking Africa, the Middle East, Southeast Asia, and the transitioning countries" (3). According to Schäfer and Painter (2020), the existing studies of climate journalism in Africa have focused largely on the content and volume of media coverage (see e.g., Nassanga et al. 2017) in print media and on the countries Nigeria and South Africa (Schmidt, Ivanova & Schäfer 2013, Tagbo 2010).

Despite differences in the reporting of climate change, there are some general concerns with regard to the global nature of the issue. Already in 2009, Shanahan noted, "[c]limate change demands both political and personal responses in all parts of the world, and effective decision making at both scales will depend on timely, accurate information" (145). Shanahan (2009) did not specify what "timely, accurate information" can mean in different national contexts. Here, Olausson and Berglez (2014) emphasise the significance "of criticizing particularistic approaches from a universalist point of view" (258). This means that when discussing the challenges and possible mitigation strategies of climate change in the media, a mode of differentiating between universal and particular claims is needed (ibid.). This entails discussions about particularism and universalism along with normative concepts. Especially in climate journalism, concepts such as cosmopolitanism, domestication, and cultural imperialism in the global news ecology can influence coverage and should be considered in an analysis (Cottle 2009a).

What this means for the study of climate change reporting is that it is as important to investigate specific characteristics in national coverage as it is to consider the comparison of overarching transnational patterns in comparative approaches. Reflections can include questions about which findings in this field of research are culturally biased and which concepts and ideas are communicated as universal. Here, Olausson and Berglez (2014) note that in this

sense it is perhaps not effective to do mainly large cross-national quantitative analyses, "which squeeze many different countries under the same theoretical and methodological umbrella, implying in a 'positivistic' fashion that it is not problematic to ask similar questions of all countries in the world" (258) without considering, for example, the historical background, and their position in the global hierarchy. Instead, they suggest that there is a need for more detailed, partly qualitative studies that consider social, economic, and cultural conditions along with other historical factors in the specific countries (ibid.). Further, Olausson and Berglez (ibid.) criticise the idea that the world's media all need to move in a similar direction – an idea that is likely to be biased by 'western' research perspectives. This, however, should not lead to radical particularisation and relativisation. The authors argue that instead of simply transferring 'western' concepts and theories to other countries, "research on mediated climate communication should give us an increasingly diversified picture and understanding of climate reporting" (ibid.: 258). These concerns suggest that future studies on climate change reporting need to include critical questions. Going one step further, "the real challenge appears to be how to define and perhaps even create a normative 'model' for how national media in various parts of the world 'ought' to handle the climate issue" (ibid.). This would include universal aspects as well as contextual influences and national realities such as power, development, and vulnerability to climate change.

3.4. Part 3: Contextualising the research and summary

3.4.1. Imbalances and research gaps

Despite the many studies on climate change reporting, there are still some gaps that require more research. This final section of the literature review looks at some of the gaps that have been addressed in previous studies to underline the relevance of this project.

3.4.1.1. Geographical focus

While there seems to be a trend of diversification in the field of research with "scholarly attention for media representations from all continents" (Schäfer & Schlichting 2014: 153f.), the different countries and continents are still not analysed to the same degree. According to Schäfer and Schlichting (ibid.), countries in Europe make up the largest share of studies with the UK clearly dominating (Boykoff 2008, Carvalho & Burgess 2005, Carvalho 2007), followed

immediately by Sweden (Olausson 2009). French and German media have received comparably less scholarly attention over time (Schäfer & Schlichting 2014: 149). The second largest share focuses on North American countries. That said, attention is slowly shifting away from this region (ibid.). In contrast, interest in media coverage of Asian countries has recently grown considerably after receiving "only a small amount of research interest in the early decades (6%)" (ibid.). Especially since the 2010s, more studies have focused on India (see e.g., Billett 2010, Boykoff 2010, Keller et al. 2019) and China (see e.g., Tolan 2007).

In an advanced review, Schäfer and Painter (2020) synthesized "scholarship on both the status quo and the changes taking place in climate journalism in the Global North and the Global South" (1). Similar to Schäfer & Schlichting (2014), scholars see an imbalance in the geographical focus and note that most studies "come from, and focus on, countries from the Global North, particularly the Anglosphere" (Schäfer & Painter 2020: 4). They state that climate journalism in emerging and developing countries is still "generally under-researched" (ibid.; see also Comfort & Park 2018, Schäfer & Schlichting 2014). In this context, Comfort and Park (2018: 869) found that 52.8% of all studies analyse environmental communication in the US. Accordingly, only 6.4% of all publications focus on China, while "major developing countries like Brazil and India appeared in less than two percent of studies," (ibid.) and only few studies examine "poorer nations such as Ghana or Bangladesh" (ibid.). An exception, for example, is a study conducted by Appiah, Gastel, Burdine and Russell (2015) on climate journalism in Ghana. Here, the scholars observed that general reporters tend to cover science topics such as climate change, not expert journalists. The other studies on climate change communication in Africa focus mostly on print media in Nigeria and South Africa (see e.g., Schmidt, Ivanova & Schäfer 2013, Tagbo 2010).

So far, research interest in media coverage of countries in the Global South has grown to a low level and "in the case of Latin America and Africa a very low level" (Schäfer & Schlichting 2014: 153f.). The research field is still one-sided despite a trend towards diversification which could "help to properly grasp the varying understandings of, and perspectives on, climate change that exist around the globe" (ibid.). This means that most studies still focus on countries that are mostly responsible for anthropogenic climate change and only a few investigate media coverage in countries that are most affected by, or vulnerable to, the effects of climate change.

3.4.1.2. Media outlets

A second imbalance that Schäfer and Painter (2020) refer to in their study is a focus on traditional news outlets in the form of "legacy print media or their online presence, and the journalistic content they produce" (4). Schäfer and Schlichting (2014) confirm in their meta-analysis that print media accounted for more than two-thirds of all studies in climate change communication until 2010, with a decreasing tendency. In 2017, studies on environmental communication that analysed print media made up most of the published research (Comfort & Park 2018). One reason for this development may be the accessibility of online articles using databases such as *LexisNexis* and *Factiva*. However, over the past few years, scholarly attention on online media has increased (Schäfer 2012), with more and more studies analysing content on the micro-blogging platform *X* (formerly *Twitter*) (see e.g., Bosch 2012, Pearce et al. 2019).

3.4.1.3. Case selection

As a global phenomenon, climate change affects societies all over the world. Comparative media studies can help us understand international dynamics in climate journalism. So far, however, most studies in the early 2000s, regardless of their geographical focus, have been single-case studies (see e.g., Schmidt, Ivanova & Schäfer 2013). Due to different methodological approaches, research questions and time frames, the comparison of study results can be difficult. Thus, comparative study designs present a useful tool to contrast climate change reporting between countries. According to Schmidt, Ivanova and Schäfer (2013), this kind of comparative research is crucial for further evaluations of climate communication.

Most comparative studies include countries from the Global North (see e.g., Boykoff 2007, Boykoff & Rajan 2007, Brossard, Shanahan & McComas 2004). Some studies include India and Brazil, or countries in Africa like Nigeria and South Africa (see e.g., Eide, Kunelius & Kumpu 2010, Schäfer, Ivanova & Schmidt 2011, Shanahan 2009, Painter & Ashe 2012). There are, for example, comparative studies that focus on media attention for climate change (see e.g., Vu et al. 2019, Schmidt, Ivanova & Schäfer 2013), assess the quality of climate science reporting (Shanahan 2009), or focus on climate policy and the coverage of international negotiations in the news (Eide, Kunelius & Kumpu 2010). It is important to note that comparisons without reference to corresponding factors can limit the comparability of the results. Absolute numbers of articles on climate change are influenced by various factors such as the size of a country or the newspaper and present no reliable indicators for assessing national attention levels to climate change. For example, Schmidt, Ivanova and Schäfer (2013) note that

"this problem also diminishes the informative value of the otherwise pioneering data collection by Boykoff and Mansfield (2013)" (1234). This study includes 50 newspapers from all continents, and it does not give a clear indication of the factors that may cause the reported differences in coverage between European and Asian countries.

Olausson and Berglez (2014) stress the importance of comparative studies to "achieve a more diverse and complex understanding of climate reporting, globally speaking" (256). And while there are comparisons aiming to create a more diverse, pluralistic picture of how media construct climate change, there is still a need for further comparisons. Such studies could "provide a deeper understanding of climate change in the media around the world by taking into account the political, cultural, historical, social, and economic conditions in the actual country of investigation as well as its status/role/power in relation to other nations" (ibid.). This is where this research project fits in. It aims to undertake a comparative study that provides a deeper understanding of climate journalism in each of the countries by including specific conditions of each country as well as comparing climate coverage beyond national borders.

Contextual influences, power structures and institutionalised narratives underlie media products. Especially when comparing national media coverage between countries in Europe and former colonial regions in Africa, it is crucial to refer to the journalistic system as part of a larger power structure introduced within historical relationships of domination and resistance. While media and communication studies show affinities with postcolonial theory, "there appears to be a relative absence of explicit intersections with postcolonial theory" (Nothias 2020: 247). This research project includes a postcolonial lens to be more receptive for the reproduction of institutionalised knowledge and techniques of othering that may underlie climate change reporting in different countries.

3.4.2. Summary

The previous sections of the literature review examined some of the concepts and debates – both in academia and in newsrooms – that play a role in the various facets of climate change reporting. Drawing on relevant literature and studies, the review considers how climate change reporting has evolved over time and in various settings to help contextualise current trends. It is hoped that the literature review and the reflection of different arguments from the literature allow for a deeper understanding of the research field and help situate the project at hand within the larger context.

The literature review looked at the development of climate change reporting in a global context and the role of climate policy in journalism. The previous sections outlined some of the

main works relating to climate change communication, journalism practices and country-specific developments in climate journalism. This research project is located within the field of science communication and combines a quantitative content analysis with qualitative semi-structured interviews.

4. Theoretical framework

This chapter provides the theoretical framework for the analysis. It draws on sociological approaches to journalism studies as well as postcolonial studies and combines the different research fields to ensure a theoretically sound analysis. This includes a section on news value theory from the field of journalism studies, sections on the concepts of the Global South and Global North and their role in media and communication studies as well as sections on the intersection between journalism and postcolonial studies. The sections are then followed by an overview of the debate about epistemic justice and global news flows. This is relevant for this study because climate change presents a global issue, and the analysis investigates whether it is reported as such or rather combined with the coverage of other national issues.

4.1. The theory of news values: Beginnings, developments, and differentiations

The interest in the logic behind news selection has been the focus in several studies, especially in the European context. The research focuses on the connection between characteristics of the event, the journalistic selection criteria, and the final news stories. Due to physical limitations of newspapers, staff, time, and monetary resources, only a small fraction of everything that happens in the world can be reported by the media. This does not necessarily mean that every news source includes a small part of every current event, but that media attention follows journalistic selection criteria (Eilders 2016). And since media content can function as a central source for the public perception of reality, these selection criteria can influence opinions and actions. The theories on news selection or news values and agenda setting theory go hand in hand. The former will be explained and discussed in more detail in the following.

The Norwegian researcher Einar Östgaard contributed significantly to the foundation for this research tradition. In 1965, Östgaard identified factors that systematically influence the international flow of news. The researcher observed, for example, that media prioritise simple issues in contrast to complex ones or that they prefer stories with room for identification. Furthermore, identification in form of either spatial proximity or the involvement of a famous or relevant person can enhance the probability for an event to become news. Finally, Östgaard (ibid.) presents sensationalism as a third factor in the selection of news.

Johan Galtung and Mari Holmboe Ruge used the three factors introduced by Östgaard in 1965 and shaped the research tradition of news values significantly. They argued that if an

event has one of these features, it has a higher chance to be reported by the media. Galtung and Ruge (1965) identified twelve factors in total which they based on insights from the field of perceptual psychology and reception theory. The authors formulated the hypotheses that journalists are more likely to report on events with a limited duration at a specific location and on events that are extraordinary, simple, or unexpected (ibid.). Additionally, according to Galtung and Ruge (ibid.), journalists prefer events that are part of a sequence or series or deviate from other events.

Apart from identifying and systematising news values, Galtung and Ruge formulated further hypotheses about the interaction between news values and the stages that are part of the flow of news: An event has a higher probability of becoming news if it has a high news value ("news selection hypothesis") – with an increased probability the more news values it satisfies ("additivity hypothesis") (Galtung & Ruge 1965: 71). If an event is low on one factor, certain news values can complement each other ("complementarity hypothesis") (ibid.: 72). The authors systematise the selection of news along these criteria as a multistage process.

Other scholars introduced the degree of journalistic attention of news (see e.g., Sande 1971, Schulz 1976). Concentrating, for example, on the correlation between news values and degree of attention, Rosegren (1974) made a distinction between the effectiveness of news values for "quantitative" and "qualitative gatekeeping" (148). "Quantitative gatekeeping" refers to the influence of news values on the scope of a report, while "qualitative gatekeeping" describes the influence of news values on the layout (ibid., see also Eilders 2016).

In 2001, Tony Harcup and Deirdre O'Neill published their first paper titled "What is news? Galtung and Ruge revisited" where they took Galtung and Ruge's taxonomy of news values and tested them in an empirical analysis of news articles published in three national daily British newspapers. Additionally, they provide "a review of Galtung and Ruge's original study as well as a wider review of related literature" (Harcup & O'Neill 2001: 261). Already in the introduction, Harcup and O'Neill (ibid.) note that "the news values put forward by Galtung and Ruge were hypothetical, were limited to the reporting of foreign news, and were primarily concerned with the reporting of events" (262). They also argue that the media landscape has changed drastically due to the rise of the Internet (ibid.). One major critique by Harcup and O'Neill (2001) is that with their focus on three major international crises, Galtung and Ruge "ignored day-to-day coverage of lesser, domestic and bread-and-butter news" (ibid.: 276). Here, they add that the identification and analysis of news values usually provide more insights about how stories are covered than the reason for the initial selection (ibid.). According to Harcup and O'Neill (ibid.), "the much-cited Galtung and Ruge list of news values should be regarded as

open to question rather than recited as if written on a tablet of stone" (277). Here, Harcup and O'Neill (ibid.) provide a "contemporary set" (278) of news values: the power elite, celebrity, entertainment, surprise, bad news, good news, magnitude, relevance, follow-up, newspaper agenda. However, they also encourage future research to test these news values for their effectivity (ibid.: 279).

More than ten years later, Tony Harcup and Deirdre O'Neill (2017) revisited the news values again. This study further explores the extent to which the revised list of news values remains relevant, also including the emergence of social media. Harcup and O'Neill (ibid.) aim to "examine the extent to which any taxonomy of news values devised in the age before *X* (formerly *Twitter*), *Facebook* and other interactive platforms, can be taken as read today" (1471f.). In their conclusion, they highlight the importance of "shareability" of content and of visuals, both in newspapers and on social media, "leading us to conclude that arresting audio-visuals are certainly worth listing as a news value in their own right" (ibid.: 1481). Finally, Harcup and O'Neill (ibid.) propose "an updated set of contemporary news values" (1482): exclusivity, bad news, conflict, surprise, audio-visuals, shareability, entertainment, drama, follow-up, the power elite, relevance, magnitude, celebrity, good news, and news organisation's agenda. They add that "*who* is selecting news, *for whom*, in what medium and by *what means* (and available resources), may well be as important as whatever news values may or may not be inherent in any potential story" (ibid.: 1483, emphasis in the original).

Staab (1990) creates another theoretical model in the field of news value theory and understands news values as journalistic attributions. In his "finalmodell", Staab (ibid.) builds on Kepplinger's (1989a; 1989b) hypothesis that journalists rather consider the desired reception of the audience than the criterion of relevance in their news selection. For example, aspects that align with the assumed political orientation are highlighted, while those that do not match with this orientation are deemphasised (Eilders 2016). This hypothesis, specifically, is part of the research field on news bias. Staab (1990) connects this thought to the role of news values in the journalistic selection process by assuming a conscious implementation of news values. This way, the traditional causal logic of news value theory is reversed and characteristics of an event or an issue no longer primarily influence the journalists' selection decisions (Eilders 2016). Instead, characteristics can also be a result of the selection decisions by allocating specific characteristics to a news story that is considered relevant. With the "finalmodell", Staab (ibid.: 98) aimed to introduce a complementary approach to the traditional news value theory which emphasises the intentional use of news values in news selection.

Kepplinger (1998) created the foundation for Staab's model with his thoughts about an intentional emphasis of certain characteristics of events and issues by journalists (see also Kepplinger & Ehmig 2006). If journalists perceive news values as characteristics of certain events (material perspective), researchers can use content analyses. However, if journalists understand news values as journalistic selection criteria (cognitive perspective), researchers need to interview the journalists to get the necessary insights (Eilders 2016; Caple & Bednarek 2015). In a two-components-model, Kepplinger (1998) introduces a distinction between news values that are connected to journalistic selection criteria and news factors that are connected to the characteristics of an event. The extent to which news factors contribute to the selection criteria can be explored through specific interviews with responsible journalists. The empirical field remains, however, rather limited. Generally, Eilders (2006) perceives the news texts as results of a journalistic selection process that correspond with the appropriate journalistic selection criteria.

Fretwurst (2008) adds another layer to the theory of news values by including the relation between news factors. Instead of referring to news factors as individual entities, Fretwurst (ibid.) formulated the hypothesis that news factors form clusters. These clusters are made up of a hierarchical systematisation of individual factors (ibid.). The central distinction lies between news factors that possess either an individual or a societal relevance, in addition to the factor of novelty which Fretwurst (ibid.) describes as an overarching factor.

To sum up, news value theory has become an established theoretical tradition in the field of journalism studies and has been refined, enhanced, and used in various studies. The research tradition is especially present in Europe and therefore follows a specific school of thought. Several studies focus on this area and on reporting from countries within this region. Apart from a strong regional focus, one of the most prominent weaknesses of the research tradition is its concentration on relatively abstract characteristics without always considering the actors who can select the news, their political orientation, and goals. This means that research on news values oftentimes stays mostly apolitical and falls short of thoroughly explaining journalistic selection decisions (Eilders 2016). The influence of editorial and organisational structures in which the journalists – and with it also the integrated selection decisions – are considered only marginally in the news value theory (ibid.). While the research on news values to explain journalistic selection processes may have a too limited focus, according to Eilders (ibid.), this limitation on the micro-level can also be seen as one of the strengths of the research tradition because it stays coherent and consistent. The normative and highly charged question of whether journalists narrow down the choices in the interest of the audience from the stream of news or

whether they create a reality disregarding the audience's preferences remains at the core of the research tradition (ibid.).

4.2. Global South and Global North

This project compares climate coverage from different countries with each other. In this comparative approach, the terms Global North and Global South are used. First, these concepts are part of the debate about climate policy and the historical responsibilities of the countries belonging to the Global North. Second, these terms are used to explore whether international structures influence the reporting of climate change. For this, a conceptualisation is useful. These terms, however, should not simply be used nor be defined and questioned in the light of postcolonial structures and the question about the power of interpretation. In the following two sections, the concepts are first defined, and issues and limitations are presented. Subsequently, the theoretical relevance of these terms for journalism studies is evaluated.

4.2.1. Definitions, issues and limitations

Already in 1980, the former German chancellor Willy Brandt published the "Brandt report" where he referred to the new international world order and a conflict between North and South. Here, however, the meaning of these two categories was closely tied to geographic location with the labels of 'developed' and 'developing' countries. In the past decade, the concepts of the Global North and the Global South were established in the academic field and subsequently also in public discourse. The concepts were introduced to highlight ways in which "histories are not necessarily confined to specific geographical boundaries" (Iqani & Resende 2019: 2; see also Levander & Mignolo 2011). The idea behind this conceptualisation is to draw links across nations and societies that in the case of the Global South "share a history of exclusion and oppression" (Iqani & Resende 2019: 2) due to colonialisation. According to Kloss (2017), "[t]he Global South is not an entity that exists per se but has to be understood as something that is created, imagined, invented, maintained, and recreated by the ever-changing and never fixed status positions of social actors and institutions" (1). In this sense, the concept of the Global South aims to empower social actors that find themselves "to be in subaltern(ized) positionalities of global networks of power" (ibid.). The concepts are not tied to a specific region. On the contrary, "the South is everywhere, but always somewhere" (Sparke 2007). For example, the Global South can exist in so called industrialised countries like the US (e.g., after hurricane Katrina in New Orleans) or in Europe (e.g., in under-resourced refugee camps), and

the Global North can exist in developing or emerging countries (rise of the middle class e.g., in India or luxury retail spaces in São Paulo and Johannesburg) (Iqani & Resende 2019).

The terms were first used on record in the Social Sciences and Humanities in the mid-1990s and have been increasingly used since then, with mentions in 19 publications in 2004 compared to 248 in 2013 (Pagel et al. 2014). At first, the newly coined concept of the Global South was perceived as a substitute for the concept of the 'Third World'. The term was regarded as more politically correct in comparison to 'Third World', "at least among those who fail to recognize the inherent biases reproduced by such a generalized use of the concept" (Kloss 2017: 3). In fact, the new conceptualisation was introduced to overcome derogatory references and generalisations, and to emphasise the processes of decolonisation, nation-building and overall progress. The term 'Global South' rose to prominence with the purpose of moving beyond biases and the developmentalist discourse, giving agency to regions and groups (ibid.).

When the Soviet Union – then also known as the 'Second World' – collapsed after the Cold War, the 'Three Worlds' model lost its meaning as categorising the world order in the 1990s and soon became obsolete (Dirlik 2004). In the subsequent years, some countries transformed into transition economies, particularly the BRICS states (Brazil, Russia, India, China, and South Africa). Thus, a simplistic categorisation into 'North' and 'South' no longer reflected the changing global dynamics. Moreover, the ubiquitous concepts of 'developed' and 'developing countries' have equally lost their "theoretical legitimacy" (Pagel et al. 2014: np). Not only did this conceptualisation rely on an implied hierarchy that was enforced during the colonial period and is, thus, based on exploitation and violence, centres of global economic growth have also moved to places outside of Europe and North America. These evolutions and developments "offer the discursive opening for various new postcolonial and development debates" (ibid.). One of these debates initiated the introduction of the concepts 'Global North' and 'Global South'.

By adding the term 'global', the concepts should no longer be perceived as a geographical classification, "but as a reference attending to unequal global power relations, imperialism, and neo-colonialism" (Kloss 2017: 4; see also López 2007, Levander and Mignolo 2011). The concept aims to challenge the subaltern position within global networks of power. In this context, Alfred López (2007) writes:

> What defines the global South is the recognition by peoples across the planet that globalization's promised bounties have not materialized, that it has failed as a global master narrative. The global South also marks, even celebrates, the mutual recognition among the world's subalterns of their shared condition at the margins of the brave new neoliberal world of globalization.
> (3)

Similarly, Miraftab and Kudva (2015) stress that the Global South "emphasize[s] a shared heritage of recent colonial histories in the global peripheries" and that as a "conceptual construct, [it] offers a useful frame of reference by acknowledging the colonial past and a more recent shared development history" (4). Here, Kloss (2017) puts forward the questions of what the difference between the Global South and subalternity is and whether it is only another buzzword to legitimise new research. These concerns can be rebutted with the potential of the Global South to exceed the concept of subalternity and "transcend geographical and ideological frontiers" (López 2007: 8).

Further criticism was raised about classifying the concept of the Global South with postcolonial theory which would make it yet another example of epistemic imperialism: For example, Dorothy Figueira (2007) put forward the question of whether it is "yet another attempt to engage the Other" (144) and thereby only reproduces hegemonic structures. And, according to Levander and Mignolo (2011), some of the critique holds true since these dual oppositions of East/West or North/South originate from the period of Enlightenment and therefore possess a Eurocentric, imperialistic connotation. Additionally, the notion of the 'global' can be traced back to the time of European colonial expansion (Bhambra 2014). Some critics say that it acts as little more than a substitute with the same problematic meaning as the terms 'Third World' or 'developing countries'.

At this point, it needs to be questioned whether these concepts are "merely a reworking of old binaries" (Iqani & Resende 2019: 2) and in what way they can create a new framework that shifts the perspective to "a non-Western-centric global culture" (ibid.). To some extent, the idea of the two concepts may not seem so different to the categorisation of 'the West' and 'the rest of the world'. However, the terms Global South and Global North were introduced to refrain from an implied hierarchy between 'the West' and the idea of 'the First World' in contrast to 'the Third World'. In this sense, especially the term Global South is intended "to capture the other side of western binary in an affirming vocabulary that does not depart only from a position of deficiency" (Iqani 2016: 4). It tries to bring together some relevant characteristics that the regions have without "homogenizing their disparate and unique characteristics" (ibid.). Yet, there is still a noticeable gap between what is referred to as the Global North and what is described as the Global South in form of a power imbalance.

Thus, it is crucial to critically engage with the dualistic system and highlight the "racist, cultural, and religious reductionist and deeply imperial sides of these concepts and divisions" (Tlostanova 2011: 69). According to Mahler (2015), the conceptualisation can be advanced to include a variety of intellectual traditions and challenge existing power relations and

inequalities to enable resistance. In this understanding, the concepts can create space for identification and evolve dynamically "in the struggle and conflicts between imperial global domination and emancipatory and decolonial forces that do not acquiesce with global designs" (Levander & Mignolo 2011: 3). It is not sufficient to see both concepts as "simplified oppositions and homogeneous entities whose histories are assumed to be distinct when they are indeed deeply entangled" (Kloss 2017: 7), but it is important to understand the complex power relations that have led to the need for this conceptualisation and for a constant re-evaluation.

Going one step further, Schneider (2017) calls for the invention of an entirely novel expression since she sees "a deep-seated Eurocentrism" (32) due to the geographical and simplistic uses. Referring directly to Schneider (2017), Kloss (2017) believes that a new term would have similar issues and be defined in relation to the previous terms. Additionally, "[t]he invention of a new term would further run the risk of silencing and glossing over the historical implications of global hierarchy, domination, and conditions of subalternity" (ibid.: 8). Instead, Kloss (ibid.) proposes to nuance the idea of the Global South by highlighting and potentially even transforming dominant patterns and subalternate relations. The concepts of the Global North and the Global South could instead be seen as part of a dynamic process that is influenced and shaped by ever-changing positions of groups, persons, and institutions. If they are perceived in this way, they can contribute to restructuring global networks of power (ibid.).

When looking at the use of these terms in the academic sphere specifically, there are some issues to consider: Academic knowledge production has largely been based on dominant structures and unequal opportunities, and sensibility to these underlying structures is crucial here (Mignolo 2013). Especially in academic knowledge production, it is necessary to understand the two terms as dynamic concepts and not as simplified substitutes for 'Third World' or 'developing countries'. Otherwise, academic research would contribute to maintaining dominance of specific groups and epistemic traditions in the global sphere. Instead, this conceptualisation should be "considered a political consciousness, an engaged and possibly liminal practice through which global unequal power structures are actively restructured" (Kloss 2017: 14). Scholars in prominent institutions have a heightened responsibility to reflect on their practices and recognise when they communicate certain concepts and knowledge practices as universal.

The debate about adequate terms and conceptualisations is an ongoing debate. And while the concepts of Global North and Global South are used in this project, it should be noted that activist groups in particular have now begun to criticise them. For example, the global youth climate strike movement, *Fridays for Future*, has started using the phrase "most affected

people and areas", using the acronym MAPA, to refer to regions and people most impacted by the climate crisis, instead of referring to specific countries or regions (Reyes & Calderón n.y.). The term was first introduced by the climate activist group *Extinction Rebellion* who then gave permission to use the acronym (Carroll 2022). Looking at the term more specifically, "MAPA includes countries, communities, and people that have been historically colonized or marginalized and now suffer environmental consequences" (Fortgang 2021). Additionally, it is connected to the issue of climate justice with the aim to take an intersectional approach (Reyes & Calderón n.y.). According to the activists, "MAPA includes all territories in the Global South (Africa, Latin America, Pacific Islands, etc.) as well as marginalized communities (BIPOC, women, LGBTQIA + people, etc.) that might live anywhere in the world." (ibid.). The term MAPA aims to take a more intersectional approach to climate justice and includes marginalised groups affected by climate change.

To sum up, this project aims to contribute to further broadening the scope of climate change communication research by including different countries and – more importantly – insights shared by local journalists. Within the media and beyond, the categories of 'north' and 'south' are not perceived as neutral terms but are (re)negotiated within cultural and political histories dating back to the colonial period. In a sense, they are a discursive construction within a system of power relations that produces knowledge. From the media point of view, the Global South is seen "as constitutive of cultural and political disputes" (Iqani & Resende 2019: 6). The media play a crucial role in building narratives that shape people's interpretation of these spaces. Thus, the media are not only part of a space, "but are also responsible for producing narratives about it" (ibid.: 7). Using this "narrative territoriality" (ibid.), the media are a crucial space for shaping and changing the meaning of the concepts of the Global South and the Global North which will also be considered for this research project.

4.2.2. Imagining the Global South in journalism studies

Despite the calls to 'dewesternise' or 'internationalise' the field of media studies (see e.g., Curran & Park 2000, Thussu 2009, Wang 2011), Willems (2014b) argues that the Global South "continues to be theorized *from* the vantage point of the Global North" (7, emphasis in original). Instead of acknowledging the agency of the Global South in media production and consumption, the media landscape is often still measured against the Global North (ibid.). There are different approaches to overcome this perceived subalternity and move beyond this dualistic approach.

By moving beyond a simplistic definition of the Global South as a region inferior to the Global North, the term can offer great potential to put more emphasis on what is perceived as the periphery in debates about media and communication practices. Here, it is important to emphasise the knowledge production that has been happening in the Global South since the calls for internationalising the academic field can easily gloss over or silence the efforts that have been made by scholars for years. Additionally, this endeavour aims to move beyond 'normative dewesternisation' which Willems (2014b) defines as "the act of representing 'the Other' but from within the prism and norms of 'the Self'" (8).

Valentin Y. Mudimbe (1988) has invoked the concept of 'epistemological ethnocentrism' which refers to "the belief that scientifically there is nothing to be learned from 'them' unless it is already 'ours' or comes from 'us'" (15). This form of Eurocentrism which is also present in journalism studies tends to elevate "Western history while patronizing and even demonizing the non-West. It thinks of itself in terms of its noblest achievements – science, progress, humanism – but of the non-West in terms of its deficiencies real or imagined" (Shohat & Stam 1995: 3). For a long time, geopolitics have created an ideological division of the world into superior and inferior, or developed and underdeveloped regions (Willems 2014b). Media systems adopted this hierarchy with a tendency to present "media systems in the Global South as negative imprints of a presumably superior, Western liberal-democratic model" (ibid.: 11). The aim of this research is to move beyond interpreting media systems "through the normative lens of the Global North" (ibid.) and instead promote a more grounded understanding of other media systems without seeing them as deviations from 'Western norms'.

Oliver Boyd-Barrett (1977) defined media imperialism as "the process whereby the ownership, structure, distribution, or content of the media in any country are singly or together subject to substantial external pressures from the media interests of any other country or countries, without proportionate reciprocation of influence by the country so affected" (117). A broader definition of cultural imperialism according to Schiller (1976) describes the concept as "the sum of the processes by which a society is brought into the modern world system and how its dominating stratum is attracted, pressured, forced, and sometimes bribed into shaping social institutions to correspond to, or even to promote, the values and structures of the dominant centre of the system" (9). This evoked several critical responses that put more emphasis on the agency of the Global South. However, Willems (2014b) argues that they were still largely defined in "response, reaction, and resistance *to* the North" (12, emphasis in original).

Proceeding from the concept of culture or media imperialism, the idea of 'contraflow' identifies a shift in dominant flows of media and cultural products from the Global North to the

Global South (Boyd-Barrett & Thussu 1992). This concept is related to other accounts that observe blurring lines between what is perceived as the centre and what is perceived as the periphery. Appadurai (2008) refers to the emergence of these interconnected, deterritorialised spheres as "scapes". This means that media flows are no longer just unidirectional from the Global North to the Global South, instead they have become more complex and multidirectional (Willems 2014b). Here, however, it is crucial to understand media products from the Global South without predefined standards from the Global North (ibid.: 14). Instead of defining the agency of the Global South as reactive or in response to the Global North, they should be "treated as a self-reliant driving force on its own" (ibid.). Of course, the Global North continues to influence media practices in the Global South, however, this dynamic must be approached as an equal relationship where no region has the hegemonic power to define normative practices. Furthermore, practising a sensibility and consciousness about the agency of individual regions can help observe power relations among nations of the Global South (ibid.).

This approach serves as a foundation for this project where there is no implied hierarchy between the countries that are part of the study while still being conscious of the underlying power dynamics that date back to the period of colonial exploitation. The countries are not only compared with regard to the concepts of the Global North and the Global South but also with regard to intra-continental power relations. The analysis does not start from the Global North as 'the centre', and thus it does not approach media products from the Global South "*through* the prism and norms of the Global North" (Willems 2014b: 15, emphasis in original).

Following Willems (2014b) proposition, the Global South functions "as the starting point of the analysis" (15). Similarly, Kraidy and Murphy (2008) have also advocated for

> an approach to the local that ventures beyond prevalent conceptualizations of 'the local' [i.e. periphery, Global South] as something that exists in suspended opposition with 'the global' [i.e. center, Global North], where the local acts as the global's presumptive victim, its cultural nemesis, or its coerced subordinate. A richer notion of the local should enable the exploration of power relations within the local and not focus exclusively on power as exercised by the global on the local. (346)

Following on from this, using a grounded, inductive methodology would allow for a cross-cultural comparison of journalistic products in different parts of the world that does not follow a normative classification of media products into a global hierarchy. Willems (2014b) favours this kind of approach:

> By following the flow of Western cultural products from center to periphery, or in reverse direction, international communication or global media studies scholars have implicitly reproduced a Eurocentric approach which may have, in some instances, overstated the impact of the Global North and framed the agency of the Global South only in so far as it reacts and responds to or resits the Global North.
> (15)

Thus, a more grounded approach can help the empirical analysis be more sensible to the content. At the same time, the context and the connection of the local media culture to larger structures, power relations, and global processes should also be considered (Willems 2014b). Kraidy and Murphy (2008) put forward the following argument:

> The local cannot be understood as a focus of study that is detached from the larger forces of history, politics, economics, or military conflict. Rather, the local needs to be understood as the space where global forces become recognizable in form and practice as they are enmeshed in local human subjectivity and social agency.
> (339)

It is crucial for the cross-cultural comparative approach of this project to include these broader structures. Rather than conducting a normative, comparative content analysis that investigates the media products in isolation, this study aims to connect the regional and global. This allows for comparative research that analyses local practices while still considering underlying global dynamics. In this context, Hepp (2009) writes:

> Today's media cultures comprise […] both aspects at the same time: on the one hand, there are still rather territorially focused thickenings of communicative connections, which is why it does make sense to talk about mediated regional or national translocal communities as reference points of identities. On the other hand, communicative thickenings exist across such territorial borders, [offering] the space for deterritorial translocal communities with corresponding identities.
> (5f.)

To gain a more nuanced understanding of media content produced in the Global South, Willems (2014b) proposes "a shift from an often normative comparative media systems approach to a more descriptive and contextual comparative media cultures approach" (18). According to Willems (ibid.), it remains vital to connect "studies of 'media culture' with analysis of broader processes such as neoliberalization" (19) or postcolonialism and hegemony – in the case of this project. This approach offers a more dynamic framework to examine media content and its relation to societies.

4.3. Journalism studies and postcolonial theory

The connection of postcolonial research and journalism studies is of particular interest for this study since climate change itself presents an issue of global capacity. It includes issues such as historic responsibility for greenhouse gas emissions and an uneven distribution of the effects. Thus, the issue of climate change itself inherits questions that are relevant to postcolonial research. At the same time, environmental disasters or extreme weather events do not automatically receive transnational media coverage. The level of coverage is often influenced by geopolitical interests, perceived proximity and the operation of other news values, with the result of selectivity (Galtung & Ruge 1965, Cottle 2009b). Here, Cottle (2009b) puts forward the example of the reporting of the South Asian tsunami in 2004 in contrast to the coverage of Hurricane Katrina in the US in 2005. Comparing international headlines, Cottle (ibid.) concludes that they "encode relations of national hierarchy and power while they proclaim international solidarity and extend boundaries of collective compassion" (503). Thus, the coverage of environmental catastrophes depends on the context: It can lead to a "globalization of emotions" (Beck 2006: 5f.), "actively dramatizing and enacting certain issues as 'global crises' and doing so through the modality of constructed global spectacle" (Cottle 2009b: 507). Another time, it may only be constructed as a minor event with the coverage subsiding soon after.

The following three sections examine theoretical and methodological influences between journalism and postcolonial studies, further explore the intersection between the research fields and consequently present relevant concepts.

4.3.1. Theoretical and methodological influences

Scholars have previously outlined the various ways in which communication and media studies, and more specifically also journalism studies, are intertwined with "cultural phenomena of postcoloniality" (Shome & Hegde 2002: 249), and how the recognition of these connections can free up space for new insights. In their essay about postcolonial approaches to communication, Shome and Hegde (ibid.) introduce postcolonial theory and explore the intersections with communication studies. They were able to demonstrate the relevance of postcolonial theory for communication scholarship and show how a combination of postcolonial scholarship with communication and also journalism studies has proven to generate fruitful research (ibid.). Yet, there is still room left for new innovative research projects. This is also because postcolonial scholarship does not require a particular method but

is embedded in a larger social context where its methods are "shaped by the questions posed by the contexts" (ibid.: 258). Studies that use postcolonial theory can employ diverse methodological perspectives ranging from textual criticism to ethnography (ibid.). This provides flexibility and allows for interdisciplinary studies. Furthermore, there is no underlying philosophical tradition and postcolonial scholarship is influenced, for example, by Marxism, feminism, and techniques of deconstruction to help understand the multifaceted dimensions of colonial conditions and uncover narratives or thought patterns enforced by the dominant group. Thus, postcolonial studies are flexible when it comes to methodology and philosophical tradition. However, there is one constant "to which practitioners of postcolonial studies remain committed – methodological reflexivity" (ibid.: 259). This means that scholars try to always be aware of "the history, heritage, and legacies of such methods, and the dilemma that consequently confronts the researcher" (ibid.).

Postcolonial studies can be positioned within the "broader critical project of cultural studies" (Shome & Hegde 2002: 250) that also influences communication and media studies. And while postcolonial scholarship analyses the problematics of (de)colonisation, it is not merely limited to the study of colonialism(s) (ibid.). Postcolonial scholarship is highly political and problematises societal power structures. The authors argue that it questions established institutionalised knowledge and attempts "to undo (and redo) the historical structures of knowledge production that are rooted in various histories and geographies of modernity" (ibid.).

4.3.2. Intersection between journalism studies and postcolonial studies

Communication and media studies have largely been influenced by Western intellectual and institutional structures which is why, for example, Grossberg (1982) in anticipative interrogation, already asked about "the particular involvements and investments of communication in real historical social formations" (84). Applying a postcolonial lens can foster a more critical view on communication theories and practices and encourage "the production of a more just and equitable knowledge" (Shome & Hegde 2002: 261). Additionally, problematising communication and culture from this perspective can contribute to uncovering where Western realities have become accepted as the 'universal norm'. Journalism can introduce attributions and reproduce stereotypes that exert "various forms of domination, be they colonial, neo-colonial, racial, national, gendered, and/or class-related" (Nothias 2020: 247). This shows that postcolonial theory in many ways influences journalism studies because the journalistic system is part of larger power structures and historical relationships of domination and resistance.

Edward Said's *Orientalism* (1978) as well as Gayatri Spivak's *In Other Worlds* (1988a) are two prominent examples of literature that investigate and question the links between knowledge production, power and colonialism. Both works reveal how institutionalised knowledge is always "subject to forces of colonialism, nation, geopolitics, and history" (Shome & Hegde 2002: 251). In the discussion that followed Said's (1978) influential work, the connections between the representation of 'the Other', the circulation of that institutionalised knowledge as well as the underlying power dynamics were exposed. With reference to the works of Gramsci (1971) and Foucault (1994), Said (1978) was able to show how the dominant narrative of 'the West' introduced a discourse of *Orientalism* that consistently describes 'the East' as inferior, deviating from what is perceived as 'the norm'. This work has inspired postcolonial research and contributed to the theorisation of representation in public discourse and journalism.

There are significant affinities between media and communication studies and central themes in postcolonial scholarship, but explicit intersections between both fields haven been rare up to this point (for an overview see Shome & Hegde 2002, Shome 2016, Nothias 2020). Critical media and communication scholarship investigate "questions of representation, identity, power, language, and difference in the media" (Nothias 2020: 247). There are various media and communication studies that use postcolonial concepts as part of their theoretical framework, such as Kraidy (2002), Willems (2014a and 2014b) or Parameswaran (2008). Other examples are Rao and Wasserman's (2007) study on global journalism ethics and, more recently, the studies of Serwornoo (2019) and Wahutu (2018) on the representation of Africa in African media, as well as Nothias' (2020) analysis of foreign correspondents in Kenya and South Africa.

Apart from explicit intersections between journalism studies and postcolonial theory, journalistic products have frequently provided important study material. Edward Said (1978), for example, used journalistic texts for his analysis in *Orientalism* and focused on journalism in his later book *Covering Islam* (1981). Another early work at the intersection between journalism studies and postcolonial theory was Spurr's (1993) *The Rhetoric of Empire* where the author analysed the way in which journalistic language and narratives contribute to a legitimisation of colonial exploitation and shape news about what was then known as the 'Third World'. Spurr's work focused on the connections between colonial ideologies and media representations on a textual level, overlooking the influence of media routines and the theoretical approaches of the sociology of news in his work (see Nothias 2020).

With regard to Africa, scholars have criticised the portrayal and reproduction of stereotypes in the international media over the past 30 years. This debate has given rise to a scholarship that critically analyses the relationship between media representation and postcolonial reflexivity (Bunce, Franks & Paterson 2017, Nothias 2020). There is a long tradition in media studies of investigating the presentation of Africa in the media, from *Africa's Media Image*, edited by Hawk and published in 1992, to *Africa's Media Image in the 21st Century: From the 'Heart of Darkness' to 'Africa Rising'*, edited by Bunce, Franks, and Paterson and published in 2017. Both publications analyse the way in which journalistic practices shape news content with a focus on the African media image. The idea of Africa is frequently referred to as a social construct based on stereotypes and created and sustained by media and culture. Narratives of violence, poverty and savageness in the media reproduce racist stereotypes and continue colonial discourses and racialised representations of Africa as the "dark continent" (Achebe 2016, de B'béri & Louw 2011). This debate stretches beyond academic discourse: Author Chimamanda Ngozi Adichie (2009) addressed exactly this issue in her TED-Talk "The danger of a single story". In her talk, she describes the 'single story' as a narrative created by a single group that presents only a specific perspective. Here, she sees the risk that the 'single story' reproduces a perspective based on stereotypes.

In a more recent study, Nothias (2020) analysed postcolonial reflexivity in the news industry with a case study of foreign correspondents in Kenya and South Africa. There, he described that journalism and postcolonial studies show multiple points of contact. Nothias (2020) refers to the concept of postcolonial reflexivity as "an ability to recognize the negative contribution of the news industry to representational Othering" (246). As "a journalistic disposition" (ibid.: 247), this concept is shaped by and contributes to existing and reconfigured "forms of domination and resistance" (ibid.). It is reflexive in that journalists reflect upon their work, and postcolonial in that it is conscious of the role media play in "reproducing narratives and stereotypes linked to colonial history" (ibid.: 253). In a concluding note, Nothias (ibid.) refers to the need for future studies to focus more on the intersection of journalism and postcolonial studies and the question of representation and reproduction of stereotypes in the media.

In contrast to Spurr (1993), Nothias (2020) aims to bridge the gap between "the textual orientation of a postcolonial analysis of representation and the inclination to analyze production practices in journalism studies" (248). This gap between production practices and textual features in the critical analysis of journalistic products was first addressed by Saha (2017) in connection to the cultural industry. Both scholars aim to contribute to "a new wave of

postcolonial communication and media research that links textual critique and qualitative fieldwork methods oriented towards production processes" (Nothias 2020: 248) (see also Kumar & Parameswaran 2018, Saha 2017).

Previously, Kumar and Parameswaran (2018) stressed the importance of addressing the historical implications of colonialism in media and communication studies. Postcolonial studies emphasize power imbalances and according to Kumar and Parameswaran (ibid.), media phenomena are "enmeshed firmly in both old and newly revamped global permutations of dominance" (348). In their article "Charting an Itinerary for Postcolonial Communication and Media Studies", Kumar and Parameswaran (ibid.) start by asking if postcolonial theory is or is not "relevant for communication and media studies in a largely 'decolonized' world" (347). In this context, the article aims to deepen the collaborations between communication and media studies and postcolonial studies and introduces "postcolonial communication and media studies" (Kumar & Parameswaran 2018: 347) as an area of inquiry.

Previous studies by Kumar (2014) and Shome (2016) show how communication theory often looks at development and globalisation as historical categories and how this then promotes a Euro-American view of media history as the global perspective. Kumar and Parameswaran (2018) pose the criticism that previous scholarship observing the relationships between Western and non-Western media and cultural institutions "has invariably done so through the rather reductive lenses of development communication, cultural imperialism, or, more recently, the celebratory lenses of hybridity" (349). While the authors acknowledge the effort, they agree that scholarship about communication and culture in the Global South needs to be more nuanced and better informed by perspectives from people that know the respective media systems (ibid.). Whenever media products of different regions are compared, power relations need to be considered. There are symbolic, epistemic and other ways in which power can operate which need to be included in the "analyses of exacerbating divisions and asymmetries" (ibid.: 349).

Scholars focusing on postcolonial theory have hinted at the global and imperial context that influences power relations (Fanon 2008). Postcolonial theory has investigated "the ways in which structures of power endure in the psychic realm, thus creating a colonized subjectivity through altered schemas of aspirations and cultural regimes of legitimation" (Kumar & Parameswaran 2018: 349). Modalities of Western power sustain themselves – despite and in fact due to their invisibility – "through a normativizing process" (ibid.). By integrating postcolonial theories in communication and media studies, research can become "more politically conscious and skeptical of the gleaming cultural surfaces of modernity that have

historically concealed bubbling and criss-crossing global and local inequalities" (ibid.: 350). A postcolonial and historicised perspective in media and communication studies could show how past power structures still shape cultural choices and how they relate to globalisation today (Parameswaran 2008).

Another study that is important for this project is Iqani's and Resende's (2019) chapter on *Theorizing media in and across the global south* in the edited volume *Media and the Global South*. In the chapter, Iqani and Resende (ibid.) show how media can attribute meaning and uphold the idea of the West as central, and the rest of the world as peripheral. Edward Said (1978, 1994) stressed the role of cultural production in the social construction of the idea of colony or periphery and metropole or centre. In this sense, media can broadly be defined as a form of cultural production and thus were involved in the work of imperialism (Iqani & Resende 2019). The centre-periphery binary is reproduced in different disciplines and is re-articulated rather clearly in the sense of 'developed' and 'under-developed' – more recently called 'developing' – countries, previously following the ideas of the 'first' and 'third world' (ibid.). This then establishes a notion of deficiency and hierarchy (ibid.). More recently, the notion of Global South and Global North emerged (see 3.2.). Contemporary research on the Global South should also consider narrative forms, journalism and other forms of communication not only from the prominent perspective of globalisation, but also from a postcolonial perspective and a "perspective of 'southern' theory" (ibid.: 4). Media narratives provide a useful opportunity for reflection on the ways in which representations and power structures are intertwined. Iqani and Resende (ibid.) emphasise that "if one understands media narratives as important systems of representation […], through which media tell us what the world is (or is not), the narratives themselves cannot be neglected" (5). According to Said (1994), "the power to narrate, or to block other narratives from forming and emerging, is very important to culture and imperialism, and constitutes one of the main connections between them" (xviii).

The studies reveal that postcolonial theory helps connect multiple issues, questions and even disciplines. In this approach, identities are not fixed but influenced by transnational forces. According to Shome and Hegde (2002), "it is this conjuncture or rather disjuncture that we are attempting to understand by engaging in postcolonial intellectual practice, that will result in a more democratic intervention in the global-local dialectic" (267). However, there has been some critique,including, for example, the "disproportionate focus on certain parts of the world" (Kumar & Parameswaran 2018: 354) such as India and the lack of focus on other parts of the world. Other pitfalls are: "the dangers of essentializing and reifying difference" (ibid.), the preference for content analyses and textual critique at the expense of interviews, qualitative

fieldwork, and ethnographic methods, and "the ambiguity of 'post' as a temporal marker" (ibid.). These blind spots can function as a reminder to continue research even in these alleged niche areas. As scholarship in postcolonial media and communication studies expands, it presents an opportunity to extend research objectives.

4.3.3. Relevant concepts

In studies and theoretical discourse on the role of postcolonial studies for journalism and media studies, some concepts arise repeatedly. Since the emergence of postcolonial scholarship, the field has evolved according to ever-changing global dynamics. Therefore, globalisation is a concept that is relevant for this research field. When borders become blurred, the all-encompassing concept of globalisation needs to be used with caution in order not to gloss over existing hierarchies and hegemonic patterns. Globalisation can easily be used – consciously or unconsciously – to cover up "the realities of deep divisions and inequities of exchange" (Shome & Hegde 2002: 261). Postcolonial theories provide approaches to "deconstruct privilege and account for the complex interconnections between power, experience, and culture" (ibid.: 262). One of the most influential scholars in this field, Anthony Giddens (1990), defined globalisation as a "stretching process" in which there is "an intensification of worldwide social relations that link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa" (64).

The concept of identity has become a field of tension where the interconnections and intersections of race, gender, class, and sexuality come together within the larger field of geopolitical structures (Shome & Hegde 2002: 265). In this sense, identity is a process rather than a state.

The concept of agency is of interest in both postcolonial and communication scholarship. Spivak (1988b) was one of the first scholars to problematise the issue of agency and that of voice in the context of colonisation. Like the concept of identity, agency is negotiated in the field of tension between gender, class, nation, and race (Shome & Hegde 2002). By examining colonial debates surrounding widow immolation, Spivak (1988b) demonstrates that there is limited to no space for the subaltern subject to speak – in this example subaltern women are caught between patriarchal and imperialistic forces. This piece highlights the issue of representation from a subaltern position with no access to "the centers of hegemonic power" (Shome & Hegde 2002: 266). Based on this, the discussion of agency and voice has become one of the central concerns in postcolonial studies. This discussion can also be transferred to journalism studies with questions about who speaks and who is represented. The challenge lies

in theorising “this interstitial space between agency and the lack thereof, between being constructed within structures of domination and finding spaces of exerting agency” (Shome & Hegde 2002: 266; see also O’Hanlon & Washbrook 1992).

At the intersection of postcolonial theory and communication studies, the concept of media imperialism has been introduced with great influence of Oliver Boyd-Barrett. Boyd-Barrett (2015) published a book with the title *Media Imperialism* where he explains how processes of imperialism are reproduced and transformed through and by media. In his work, he analysed how media processes are influenced by and sustain “ongoing processes of empire building and maintenance” (ibid.: 2). By means of hegemonic frames, stereotypes and power relations are maintained through the media. Boyd-Barrett (2015) established a theory of media imperialism that focuses on the inequalities of media power between countries and how media of powerful countries such as the US try to influence or even suppress media in other countries. Boyd-Barrett (2015) prefers the term ‘media’ to ‘cultural’ imperialism in order to highlight the political economy of the media industry which is where “the analysis of media and power in a global context should begin” (6). Similarly, Cook (1998) insists on seeing media as a constituting part of the political system and not only as something that covers political processes. Boyd-Barrett (2015) argues that media function as “agents for imperialism” (9) as they write their stories and frame their narratives for the purposes of presenting a positive picture of imperialistic activity by prioritising voices of imperial actors over critical or alternative voices that may criticise imperial power. Thus, the discussion of different studies on media imperialism shows that there is no single theory. It is rather a field of study that incorporates different approaches and theories about the relationships between empire and media.

4.4. Questions of epistemic justice

4.4.1. In theory: Research and epistemic justice

The debate about “epistemic justice” (Chimakonam 2017), known from philosophy or education research, proposes that research on climate change reporting in different societies and contexts benefits from including thoughts and concepts from the specific regions. Olausson and Berglez (2014) touch upon this concern and suggest that “instead of a simple transfer of western ideas, concepts, theories, analytical approaches, etc., to the rest of the world, research on mediated climate communication should give us an increasingly diversified picture and understanding of climate reporting” (258). Similarly, Scoville-Simonds (2018) demands an

inclusion of perspectives beyond "the scientific worldview that dominates climate debates" (357) to support local initiatives and ideas relating epistemic justice to climate justice. Okoliko and de Wit (2020a) make a similar suggestion and stress the importance "to account for diversity in the media(ted) CCC field as it relates to the African context" (67). Okoliko and de Wit (ibid.) argue that an underrepresentation of African research in the global field of climate change reporting "may not be unrelated to trends in the dynamics of global knowledge creation" (78). They continue by stating that the prevailing disparity between North and South in knowledge participation and distribution "calls for greater attention to further inclusive epistemic justice in the global knowledge economy" (ibid: 79; see also Scoville-Simonds 2018).

Deeper scrutiny into the creation of an analytical framework that would include local peculiarities and identify underlying postcolonial power dynamics can be a valuable addition for future research. There are some studies that investigate the media representation of Africa in general and stereotypes that were used or that still prevail in Western media (Bunce, Franks & Paterson 2017; see also Said 1978, Achebe 2016). Additionally, research has been conducted on the role of the media in strengthening or challenging postcolonial structures (see e.g., Shome & Hegde 2002, Kumar 2014, Shome 2016, Kumar & Parameswaran 2018). This literature can contribute to a more profound understanding of climate change reporting within African countries. This kind of research can go "beyond transferring frameworks as they exist elsewhere to the African context without the rigour of ensuring they fit into the lived experience of the African people" (Okoliko & de Wit 2020a: 80). A focus on African perspectives can foster the decentralisation of knowledge as it relates to the understanding of climate change reporting from the perspective of different epistemologies.

Iqani and Resende (2019) present Mignolo's (2003) research wherein he argues that there is no universal principle that builds a system of knowledge production; instead, histories and meanings from the periphery must be considered. They add that there are power relations in social, cultural, and political contexts within which concepts and thoughts must be interpreted and produced, instead of having fixed categories (Iqani & Resende 2019). This raises the question of "epistemic obedience" (Mignolo 2011) and further also 'epistemic justice'. The former concept has long been part of sustaining colonial power, and thereby adhering to a certain way of understanding the world. Iqani and Resende (2019) raise the following questions: "Would an epistemological question need to be raised when it comes to thinking about media and global south? […] Would one need to be aware of a specific media theme and/or problem, and only then ask about the territory from where it comes?" (8). According to Said (1994: xviii), "the power to narrate, or to block other narratives from forming and emerging, is very important

to culture and imperialism, and constitutes one of the main connections between them." Thus, when considering media in a comparative field of tension between the Global South and the Global North – as this project does – the thought of "narrative territorialities" (Iqani & Resende 2019: 9) implies that different contexts with their various layers of power always be considered. The next section presents more practical research on climate change reporting and evaluates how it relates to some of the theoretical considerations made in this section.

4.4.2. In practice: Research on climate change reporting in Africa

The vulnerability of African countries to climate change impacts is widely acknowledged in the literature and in international climate policy (see e.g., Ahmadalipour et al. 2019, IPCC 2014). The United Nations calls climate change "the defining development challenge of the 21st century" (UNDP 2008) with future impacts magnifying "socio-economic challenges that exist in developing countries" (Finlay 2012: 17). The anticipated impacts are already becoming a reality with changing weather patterns and increased water scarcity. The African continent is disproportionately impacted by the climate crisis, yet within the international research field of climate communication, scholarly attention on this region remains low compared to the Global North, particularly the Anglosphere (Schäfer & Schlichting 2014, Schäfer & Painter 2020, Comfort & Park 2018, Okoliko & de Wit 2020a, Okoliko & de Wit 2020b). While media coverage and framing of climate change has been an area of concern for scholars from the Global North, "[t]he African continent is yet to take a strong posture toward influencing the climate change debate raging all over the world" (Nwabueze & Egbra 2016: 113). According to Tagbo (2010), media in most African countries were not able to fully transfer the issue of climate change from the press agenda to the public agenda in the early 2000s. Already in 1998, Atinmo and Jimba conducted a longitudinal study of environmental reporting in Nigerian newspapers and found a lack of environmental information and a need to create further awareness for environmental issues (341). While this study did not look at climate change specifically, it still gives an impression about the importance of issues relating to the environment in Nigerian media coverage (ibid.).

Climate change is not only a scientific concept but also a socio-political challenge. Therefore, it is interpreted and dealt with differently depending on the social and regional context. Meta-analyses and reviews (see e.g., Schäfer & Schlichting 2014, Anderson 2009) suggest an imbalance in the geographic focus of the discipline giving less attention to countries located on the African continent. As an answer to Schäfer's and Schlichting's (2014) meta-analysis of the research field, Okoliko and de Wit (2020a) published a systematic review of

relevant literature focusing on mediated climate change in Africa. Okoliko and de Wit (ibid.) suggest that there is "a pale picture of the understanding of what communication effort is underway to get Africans to engage with climate change issues via the media" (65). If African countries are included in research studies, they are often part of a broader quantitative study where mostly only one or two media outlets are included to provide information for an entire continent (Bunce, Franks & Paterson 2017). Only a few studies look more closely into the national context of African countries instead of merely presenting absolute numbers of articles on climate change, and without referring to the differences in media systems.

Investigating climate change reporting in an African context is still an emerging sub-field in the broader research field of climate change communication. Research activities mainly began a decade ago, whereas research in and on the Global North commenced in the 1990s (Schäfer & Schlichting 2014, Okoliko & de Wit 2020a). Since then, the growth trend has been rather irregular (see graph in Okoliko & de Wit 2020a: 71). After the UNFCC's 17th Conference of the Parties (COP17) meeting in Durban, South Africa in 2011, research output started to increase with a peak in 2013. The conference attracted not only media attention but sparked scholarly interest for and within the African context (Okoliko & de Wit 2020a: 72; see also Johannessen 2013, Meiring 2013). This upward trend, however, did not last, and publication output dropped soon after. Around 2015, the meeting at COP21 and the introduction of the Paris Agreement in 2015 sparked media attention once again, simultaneously reigniting research interest in the African context (Okoliko & de Wit 2020a). Thus, there has been a trend of event-centred and cyclical attention that depends on international policy events within journalism and academia.

In 2016, Nwabueze and Egbra analysed the newspaper framing of climate change in Nigeria and Ghana. They observed that "the African continent is yet to take a strong posture toward influencing the climate change debate raging all over the world" (ibid.: 113). Similarly, Tagbo (2010) noted that the transfer between press agenda and public agenda is still pending, and she found only anecdotal reports of climate coverage in Nigeria and South Africa. And despite the level of coverage, it would be interesting to analyse how climate change is framed and "to what extent the coverage can be said to be achieving societal and attitudinal change, and what event drives the coverage of it" (Nwabueze & Egbra 2016: 116).

Nwabueze and Egbra 2016 concluded that "the Nigerian and Ghanaian newspapers do not give prominence to climate change issues, the volume of coverage of climate change issues, by the Nigerian and Ghanaian media is poor" (123). They continued to state that the level of coverage does not suffice "to set agenda for public debate on the issue, create awareness of the

issue, make the issue memorable for citizens/audience, and as such achieve the desired objective" (ibid.). In their view, African media can and should contribute to put climate change on the public agenda and provide a national or local context to these issues.

Apart from fluctuations in scholarly attention, Tagbo (2010) confirmed in her study that international events organised, for example, by the UNFCCC are more likely to increase media attention in South Africa and Nigeria compared to the coverage of local events. Evans and Musvipwa (2016) had similar results and added that the contents of African media coverage frequently come from external agencies and are rarely produced locally. In general, most studies perceive the quantity of climate change coverage in African media as disproportionate to the level of threat it poses to the continent (see e.g., Tagbo 2010, Nwabueze et al. 2015, Okoliko & de Wit 2020a).

Despite diverging timelines within the field of climate change reporting, scholarly interest in specific countries within Africa is still not balanced. According to Okoliko and de Wit (2020a), only nine out of 54 possible African countries have been included in academic research so far. Most studies have analysed coverage in South African publications, followed by Nigeria and Ghana. In the South African context, studies concentrated on the following: digital journalism in the examination of climate change reporting (Bosch 2012), the framing of climate change in South African newspapers (Cramer 2008), the coverage of COP17 in relation to climate change, poverty, and climate justice (Johannessen 2013) and its framing on television (Meiring 2013) as well as using general sociological approaches in the analysis of environmental journalism in South Africa (Kwenda 2013). Nigeria has been the focus of studies investigating the attitudes and knowledge of print media journalists in respect to the reporting of climate change (Amu & Agwu 2012), newspaper coverage of climate change issues (Nwabueze et al. 2015) and the political economy of climate change reporting within Nigeria (Meribe 2017). Studies on climate change reporting in Ghana thus far have included the investigation of knowledge, attitudes and practices of media practitioners in relation to climate change messages (Gadzekpo, Tietaah & Segtub 2018) and an analysis of newspaper framing of climate change in Nigeria and Ghana (Nwabueze & Egbra 2016). Most comparative studies tend to compare nations in Africa to non-African societies instead of undertaking intracontinental comparative studies (see e.g., Midttun et al. 2015, Ivanova, Schmidt & Schäfer 2014; see also Okoliko & de Wit 2020a). South Africa is referenced in multiple comparative studies, a fact that may be due to data access, language, and a perceived proximity from a Northern point of view (see e.g., Grundmann, Scott & Wang 2013).

Among the 34 publications reviewed by Okoliko and de Wit (2020a), most studies draw from theoretical frameworks with roots in the Western academic tradition such as agenda-setting and priming (see e.g., Adelekan 2009, Semujju 2013, Tagbo 2010) or framing (see e.g., Ajaero & Anorue 2018, Nwabueze & Egbra 2016). Meiring (2013) references "Ubuntu-ism" which relates to African intellectual traditions and thereby used an African lens to examine climate change reporting. As one of the only studies to include an African philosophical concept, Meiring (2013) refers to "Ubuntu-ism" as "the capacity in African culture to express compassion, reciprocity, dignity, harmony and humanity in the interest of building and maintaining a community with justice and mutual caring" (10). The author uses this concept to examine whether SABC, the South African public broadcast media, expressed "a sense of national purpose, identity and pride" (ibid.: 67) in their coverage of COP17.

Another example is Finlay's (2012) study which focuses exclusively on the African context and analyses the systematic challenges in reporting complexity in journalism by comparing the coverage of HIV/Aids and climate change. While the climate change story is unique, Finlay (ibid.) suggests that some of the challenges with climate change reporting have already been encountered in the coverage of HIV/Aids. Both topics "present systemic challenges to news production" (ibid.: 15), such as the complex scientific causes, political exertion of influence and the need to evaluate complex impacts on society. In most cases, these complexities are met with under-resourced newsrooms, a lack of scientific understanding among journalists and the lack of interest in the 'climate change story' (ibid.). According to Finlay (2012), like HIV/Aids, climate change is "the kind of story that offers fundamental challenges to news practices that mainstream news producers [...] are not well equipped to deal with" (16).

As mentioned previously, the debate about "epistemic justice" (Chimakonam 2017) proposes that research on climate change reporting in different societies will benefit from including thoughts and concepts from the specific regions. Instead of imposing categories that are perceived as normative in other contexts, local concerns and realities should be evaluated more closely. Olausson and Berglez (2014) touch upon this concern and suggest, "[i]nstead of a simple transfer of western ideas, concepts, theories, analytical approaches, etc., to the rest of the world, research on mediated climate communication should give us an increasingly diversified picture and understanding of climate reporting" (258). Similarly, Scoville-Simonds (2018) demands an inclusion of perspectives beyond "the scientific worldview that dominates climate debates" (357) to support local ideas and relate epistemic justice to climate justice. Okoliko and de Wit (2020a) make a similar suggestion and stress the importance "to account

for diversity in the media(ted) CCC field as it relates to the African context" (67). This study aims to be more sensitive to these remarks and observations. Additionally, this study aims to go beyond the perspective of the research and include multiple perspectives through interviews with journalists from different countries.

4.5. Global crises and global news flows

In the 1970s, concerns about the dominance of Northern media producers sparked debates about the UNESCO New World Information Order (NWIO). This debate still influences postcolonial critiques about journalistic products and practices which suggest that "Africa's global image is constructed through the Western gaze" (Bunce, Franks & Paterson 2017: 4). In 1989, Meyer referred to news dependency as neo-colonial and stated that information flows through vertical channels from North to South creating "distinct spheres of communication hegemony" (243). Similarly, Thussu (2006) speaks of "'dominant flows', largely emanating from the global North; […] contra-flows, originating from the erstwhile peripheries of global media industries" (10). This differentiation and dependency are described as a further source of cultural imperialism (Galtung 1979, 1980) and as a tool for maintaining informational hegemony and interpretational sovereignty (Schiller 1976).

In the late 1980s, Meyer (1989) critically pointed out that "a reliance on the West for news becomes a form of cultural imperialism if and when it reaches that point at which media producers and consumers in the South begin to think like their counterparts in the West" (251). Only ten years prior to that, Galtung (1979) argued that communication imperialism leads to cultural imperialism. This happens through an information flow that maintains and reinforces a dependency syndrome as referenced by Thussu (2006): "The interests, values and attitudes of the dominant elite in the 'peripheries' of the South coincide with those of the elite in the 'core' – the North". These relations then create institutional links mostly serving "the interests of the dominant groups, both in the centre and within the periphery" (ibid.: 19; see also Galtung 1979). However, Thussu (2006) criticises that this analysis of global flows largely ignores the audience and media content and "that the content can be interpreted differently by different audiences" (19). Similarly, international communication can be a prime example for neo-colonial structures of global interactions (Meyer 1989). Meyer (ibid.) identified close similarities between what he referred to as "Third World dailies" (259) and "U.S. 'prestige' dailies" (ibid.) with regard to topics and geographic areas. Meyer (ibid.) concluded that Western news values are replicated by dailies in the Global South hinting at media dependency. At the same time, articles from the "nonaligned agencies" (ibid.: 259) present more in-depth coverage of developmental news and

more relevant information for the region. Thus, when Meyer (ibid.) conducted his study, alternatives to Western-focused news frames already existed.

The question is whether a simplistic binary division of global news flows and hierarchical structures have remained the same up to this day or whether the dynamics of global news flows have become more complex. Is there still a form of media dependency that follows the geographic patterns of older forms of imperialism or can the world's communication traffic no longer be divided according to past hegemonic domains, as Meyer (1989) stated? For the most part, early studies on news flow already neglected the region of Sub-Saharan Africa (ibid.). More theoretically phrased, "there is relatively little work being done on how the 'subaltern flows' create new transnational configurations and how they connect with gradually localising global 'dominant flows'" (Thussu 2006: 19). Other studies (see e.g., Galtung 1979, McPhail 1987, Schiller 1976) highlight the neo-colonial nature of international communication. According to Meyer (1989), evidence for imperial powers and control of information flows can most likely be analysed in news reported within Africa and in news reports from Africa. While this thought has been proposed more than two decades ago, it is still included in the conceptualisation of this research project and adjusted according to the current state of research.

Using the term 'global' in the context of news flow implies that everyone contributes to this flow at least to some extent. This scenario, however, seems rather unrealistic and, considering hegemonic structures and power dynamics dating back to a period of colonial exploitation, the concepts of global media or "world's news media" (Cottle 2009b: 495) need to be discussed. Otherwise, there is a risk that adding 'global' to the description of certain media flows obscures prevailing power structures. While there may be media messages that are communicated similarly in most media outlets, the concept of global media messages can be misleading because it does not have enough nuance to account for the complex reality. In addition to this, since the Covid-19 pandemic, especially economic research traditions and other fields mention a de-globalisation and return to regionalisation.

Still, the academic interest in media globalisation has increased in recent decades and with it, different theoretical positions have emerged. Within the field of global media studies, there are two conflicting positions: (1) The "globalists" (Held & McGrew 2000) viewpoint emphasizes the media's role in globalisation processes. In this view, transnational media systems contribute to the creation of a global public sphere (see e.g., Cardoso 2012, Volkmer 2003). (2) The "sceptics" (Cottle 2009b), on the other side, are sceptical about a global public sphere and emphasize the national features of news media. Instead of considering the possibility

for transnational media systems, they refer to the digital divide and the global dominance of Western media companies (see e.g., Herman & McChesney 1997).

Olausson (2013b) proposes a discourse approach to global media focusing on the "*epistemology of the global*" (5, emphasis in original) and thereby moving away from a primarily geographic categorisation (Berglez 2008). On a similar note, Cottle (2009a) emphasises the importance of moving beyond the paradigms of "global dominance" and the "global public sphere" (28). According to the author, both approaches cannot account for the constitution of issues such as crises and how they become 'global': "Global crises are principally constituted *epistemologically* as 'global crises' through the news media where most of us get to know about them and where they are visualized, narrativized, publicly defended and sometimes challenged and contested." (ibid.: 165, emphasis in original) According to Olausson (2013b), crises – like the 2010 flooding in Haiti or hurricane Katrina in the US in 2005 – "are entirely dependent on discursive constructions of them as such" (5) in order to achieve global features generating action across the world.

While media conglomerations play a crucial role in the debates about global media production, national media should be considered equally important objects of study, as they can develop a transnational reach (Olausson 2013b). In the debate about global media, national media are oftentimes "dismissed as not significant knowledge producers concerning the global because of their inclination to depict the world according to nation-state logic" (ibid.: 5). In line with journalistic traditions, the categories of domestic and foreign can be separated. Connections between both categories are constructed through a domestication of foreign events by relating them to the national context and by emphasizing their significance. This practice is especially relevant for the reporting of climate change since journalists use different techniques to make the abstract concept more relevant to the national audience. This is also part of RQ 1 of this research project (see section 1.2.).

Despite a domestication of news stories, national media have been increasingly influenced by transnational media formats for the past few years (Volkmer 2003). Beck (2006) points out that there is an interaction between national and global outlooks, moving beyond the question of 'either-or' to 'both-and'. In a similar way, Hjarvard (2001) underlines this kind of supplementary relationship between national and global media where both spheres put pressure on each other to perform in an effective way. This can encourage what Hjarvard (ibid.) describes as "global reflexivity" where national public spheres are more and more influenced and deterritorialised through the "increased presence of global *connections* within the national framework" (24). Similarly, Cottle (2009a) stresses the media's ability to offer "a transnational

and global perspective on a problem that both migrates across and transcends national frames of reference or explanation, exposing international interconnections, contextualizing motives and exploring both the scope of the problem and its human consequences" (100).

Referring more specifically to global discourse in news media, Berglez (2008) argues that it is shaped by the portrayal of the intersections between certain topics at the national, transnational, and global level. For example, media can put local events in a global contexts or link national decisions to an international framework. A focus on interconnections "makes the global style quite different from the traditional foreign news style, which primarily reports from one nation to another without displaying any connections between the two" (Olausson 2013b: 7). This means that, from a discourse theoretical perspective, Olausson (ibid.) perceives the crucial criterion of global media to be "the ability to display complex and often subtle connections between various geopolitical scales" (7). The author goes on to explain how these connections in media discourse, "of a purely constructivist nature" (ibid.), could be generated though media logics. For example, media prefer dramatic or personalised stories, which can encourage the emergence of a global discourse with interconnections between events or people from different places all over the world. This question, in form of a news value analysis, will be approached in RQ 1b (see section 6.6.).

In connection to global news flows, Cottle (2009b) analysed media reporting of crises and stated that "global crises are publicly defined, legitimated, and mobilized as 'global crises' within the world's news media" (495) (see also Beck 2006). Thereby, Cottle (2009b) implies that there can be a global definition of a crisis which is communicated by news media from different parts of the world. While acknowledging that "how exactly news media communicate and thereby enter into the course and conduct of different global crises has generally found sparse recognition" (ibid.: 495), the author does not problematise the concept of global media messages against the backdrop of postcolonial structures and shifting power dynamics. Cottle (ibid.) adds that "globalization theorists generally undertheorize how global crises can themselves become drivers of global change and not simply the epiphenomena of underlying globalizing dynamics" (495).

This project assumes that despite globalising forces and the global nature of climate change, this crisis is reported by and large in a local instead of a global context. Already the literature review and the discussion of mediated political events shows that there are no "drivers of global change" (Cottle 2009b: 495) involved in the discussions about climate change. On the contrary, the national interest cannot only be observed in political debates but also in media

reporting. Whether or not this hypothesis holds true for this research project will be analysed and referred to in more detail in the analysis.

This section concludes the theory chapter. This chapter connected journalistic theories like the study of news values with issues in postcolonial studies. Both disciplines are combined to analyse the reporting of climate change as a global issue in national contexts of countries located in the Global South and the Global North. The theory chapter provides the foundation for an original contribution to knowledge by combining these disciplines and applying them to the research object of climate change reporting in African countries and countries allocated to the Global North. The next chapter focuses on the methodological procedure, followed by the analysis chapters. The condensed insights from this chapter help understand the complexity of the communication of climate change, international relations and structures as well as media flows and how they influence the coverage. These thoughts will be taken further in the analysis chapters.

5. Methodology

5.1. Introduction and research overview

In this chapter, the methodology for this project is explained in more detail. This project combines different methodological approaches, starting with a quantitative content analysis, followed by semi-structured interviews. Past studies have shown that there are research benefits from combining different methods. Therefore, when choosing a research method, "researchers should not only consider which is the most appropriate method for the study of their chosen topic or problem but also what combination of research methods will produce a better and deeper understanding of it" (Hansen et al. 1998: 1). With this idea in mind, the present study uses a combination of qualitative and quantitative analysis methods to compare climate change reporting in the selected countries and, ultimately, answer the research questions.

First, a comparative content analysis serves to ascertain the dominant discourses. Second, interviews with journalists are conducted to understand further the basis for the topic selection of the articles, the preference of certain news values as well as possible structural challenges in climate change reporting. By vacillating between the data from the content analysis and the interview transcripts, this study aims to reassess some of the interviewees' statements and relate their perspectives on climate change reporting to the articles analysed in the content analysis. Subsequently, the process either to supports the interviewees' perceptions or brings up further questions for investigation. With this approach, the coverage can be examined from both perspectives – the journalistic product and the journalists themselves.

A possible critique could address the use of methods only focusing on the 'content' while not integrating the context of production and audience reception. This is a valid point of criticism. However, an integration of audience reception and production processes would exceed the scope of this project. Instead, the main focus is given to the content with potential insights into production processes through the interviews. In order to accurately analyse production processes, the researcher would need to undertake real-time newsroom observations. In a study like this which looks at media content produced in different countries, even continents, this would entail major logistical and financial challenges for the researcher. Another aspect is the audience reception. Conducting reception research of this scale with surveying audiences in multiple countries is not possible due to restrictions in time and length as well as financial limitations. Additionally, including all those aspects into this study may even overextend the scope of the research and result in an analysis with no real focus and with

no clear findings. Insights into production processes and audience reception that are crucial for the analysis can partially be obtained through the semi-structured interviews.

Before going into more detail about the specific procedure for this project, the following sections give a general overview of the chosen research methods. Research methods in social sciences are usually divided into quantitative and qualitative. According to Queirós, Faria and Almeida (2017), "the qualitative methodology intends to understand a complex reality", while "the quantitative methodology seeks to obtain accurate and reliable measurements" (369). The former is used to generate subjective, observational results, the latter provides objective, measurable, repeatable results.

Despite processes like globalisation, Europeanisation, and transnational online communication, there remain different journalistic practices distinct to a region or a country (Esser 2016). In this sense, when conducting a comparative research project, it no longer suffices to compare one nation's journalistic coverage with another national sample (Esser & Vliegenthart 2017). Instead, comparative approaches need to consider transnational processes and connect local media cultures to larger structures and power relations. In comparative journalism studies, especially, the question is whether a form of global journalism is slowly emerging. However, up until this point there has been no systematic empirical study supporting this hypothesis (Esser 2016) and "mass media debates, even on transnational issues, are still predominantly nationally bound" (Schäfer, Scheffran & Penniket 2016: 82). Comparative research does not have one specific theoretical foundation but is referred to as a methodological approach. Esser (2016) defines comparative communication research as a comparison between at least two systems or cultures analysing at least one relevant research object. And while it is difficult and possibly essentialist to make generalisations about cultures or countries, comparative research can identify differences and similarities without over-generalising them (Hong, Muderrisoglu & Zinkhan 1987). This research analyses news coverage in different national contexts, and yet the analysis does not fixate on the country level as a unified entity. To avoid this, the study looks at each news outlets individually first and then contextualises the coverage in a larger international system.

Comparative communication research can be distinguished from non-comparative communication research by three factors: It is a research technique that (1) usually exceeds some kind of border between certain entities, (2) aims to formulate a cross-system or cross-cultural conclusion, and that (3) explains differences and similarities between the research objects considering the context conditions of the respective systems or cultures (Esser 2016: 112). Notably in journalism studies it is interesting to investigate how the systematic context

influences the research object and conversely, in which way the research object can shape the systematic, sociocultural context (ibid.).

Micheal Gurevitch and Jay Blumler (2003) largely contributed to laying the foundation for comparative communicative research. Both have observed a maturing process of the approach over the years. One feature that has slowly established itself over the years is the recognition that comparative studies are no longer only about comparisons but also about explanation (Esser 2016). Studies can, on the one hand, investigate causal relationships between variables to examine theories and hypotheses with a variable-oriented, quantitative approach and, on the other hand, reconstruct processes of meaning production in a case-oriented, qualitative approach (ibid.). This study includes both approaches.

The main challenge in comparative journalism studies is – at the most basic level – comparability. One requirement for comparative analyses is to ensure functional equivalence of the different research entities (Esser 2016). And since the different phenomena that are to be compared come from different national or cultural systems, creating functional equivalence can be difficult to achieve. Wirth and Kolb (2003) refer to five layers of methodological equivalence that is crucial for journalistic comparisons: (1) level of instruments (e.g., consistent coding in content analyses), (2) level of operationalisation, (3) level of items (e.g., comparable interview questions or categories for the content analysis), (4) level of population (including sampling method), and (5) level of administration (attention to culture-specific interview and coding characteristics).

At this point, it is important to note that this study looks at a content level and does not primarily compare journalistic systems. Contextual factors are still considered and will be touched upon especially in the interviews. This is, however, not the focus of this study. Stephen Reese (2008), for example, created a model for comparative journalism studies including six levels of analysis: (1) the level of the individual, (2) routines, (3) organisations, (4) external forces and institutions, (5) media system and society, and (6) international dynamics. Following this model would exceed the scope of this project and diffuse its purpose. In fact, more narrowly focused comparisons of content can provide deeper insights into some aspects of journalism than an extensive project covering multiple areas (Esser 2016). According to Esser and Hanitzsch (2011), the theoretical and methodological future of comparative journalism studies lies in multi-level research. This means that the field, on the one hand, needs more narrowly focused investigation of specific aspects and, on the other hand, needs to include large-scale studies aiming to make generalisations.

5.2. Research object

5.2.1. Selection criteria of the countries

The study focuses on eight countries. The number of countries and outlets was partly determined by the common scope of a PhD project and the level of feasibility. Other comparative studies in this field had similar issues with limiting the sample size and with focusing their study on a limited number of cases to avoid making fuzzy generalisations and oversimplifications (Hallin & Mancini 2012). This study is unique in that it does not only look at climate change coverage across countries and regions but also investigates climate change reporting with regards to international cooperation and relations. Thus, countries from the Global North that participated in colonial exploitation, and countries which were formerly colonized are included in this project. At the same time, it is a comparison between countries that have heavily contributed to climate change with their domestic greenhouse gas emissions and countries that are particularly vulnerable to the impacts of global warming. Apart from geographic location, historic roles and a certain vulnerability or contribution to climate change, practical factors also contributed to the country selection. The selection criteria ensure that cross-national differences can be interpreted in a meaningful way and are explained in the following.

Ghana, Kenya, Namibia, Nigeria, and South Africa were selected from the African continent. These countries were chosen for several reasons: While this study can by no means account for an entire continent trying "to reach generalised conclusions about 'the news coverage of Africa'" (Bunce, Franks & Paterson 2017: 8), the five countries represent a range of (1) economy sizes, and (2) geographic areas, as well as varying (3) contributions to, and (4) vulnerabilities to the impacts of climate change.

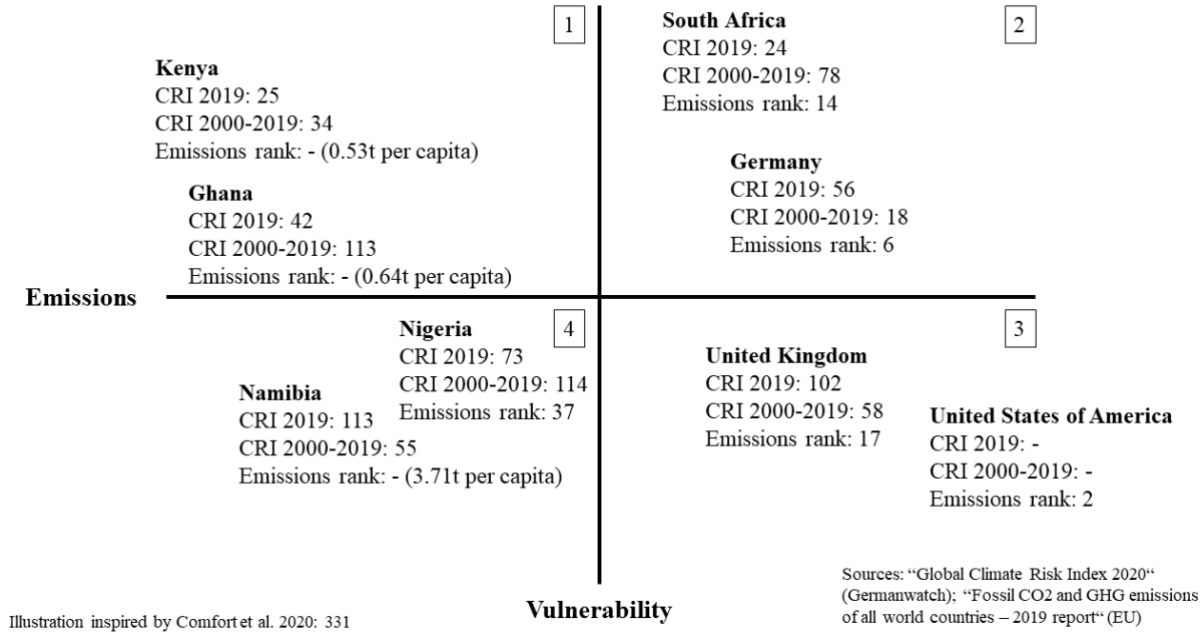
Apart from this variety, there are some practical factors that influenced the decision. All countries except for Germany have English as an official language. Furthermore, the accessibility of online news websites was considered along with the media landscapes in each of the democracies. Thus, the factors of accessibility, language, and media landscapes were considered in the selection of the countries. Additionally, the UK and Germany seemed like obvious choices since the researcher is already familiar with both media landscapes.

Due to the importance on the global stage and the crucial role in setting trends and influencing the media agenda, one outlet from the US is included in the study, as well. *The New York Times* is a prestigious medium, has an international reach and plays an important role in inter-media agenda setting. Thus, *The New York Times*, while rather left-leaning, is included as

an international news source with no right-leaning equivalent. The focal point is not on climate change coverage in the US, which is why the choice to include only one outlet from the US is justified, while also taking into consideration time constraints and the feasibility of the project. Instead, the *NYT* is included as a source with inter-media agenda setting potential on an international stage. Golan (2006) suggests that the newsworthiness of international events may result from an inter-media agenda-setting process. In addition to the analysis of national news coverage by 2 websites from each country, *The New York Times* serves as a supplement for the analysis to see which events are covered in a publication with an international reach and to see if there are any correlations between the news agenda in the selected countries.

With the country selection, a balance is achieved between an integration of a variety of countries in the research on the one hand, and other factors like language, time, and scope of a PhD project on the other hand. The following graph illustrates the different levels of contribution and vulnerability to climate change of the selected countries. It visualises how each country is influenced differently by the impacts of climate change and, conversely, how it has contributed to climate change to varying degrees. All eight countries provide a good variety of, (1) countries that are particularly vulnerable to climate change, while barely contributing to global greenhouse gas emissions, (2) countries that are particularly vulnerable to climate change, but also contribute more to global greenhouse gas emissions, (3) countries that are less impacted by climate change and contribute greatly to global greenhouse gas emissions, and finally (4) countries that are a little less impacted by climate change and also contribute less to global greenhouse gas emissions. This comparative analysis is arranged along a scale and as Blumler, McLeod and Rosengren (1992) put it, “is not just a matter of discretely and descriptively comparing isolated bits and pieces of empirical phenomena situated in two or more locales. Rather, it reflects a concern to understand how the systemic context may have shaped such phenomena.” (7)

Figure 2: Emissions and vulnerability of countries



This graph shows that each country offers a unique combination of contributing to climate change and being vulnerable to its impacts. Additionally, this graph contradicts the narrative commonly invoked of the Global South solely being a victim of global warming and the Global North solely contributing to climate change without experiencing any consequences. Both scenarios fall short of the reality which is far more complicated. For example, while Germany has greatly contributed to greenhouse gas emissions, the country is at the same time quite vulnerable to the impacts of climate change. Thus, this graph reveals that despite a first classification in two groups of countries, one assigned to the Global North and the other to the Global South, this set of countries is more diverse than it appears at a first glance.

To sum up, the countries present a good variation of contribution to and vulnerability to climate change. All countries have the same official language – except for Germany – and all of them provide diverse media landscapes where a more left-leaning and a more right-leaning news outlet can be selected for the analysis. Wessler et al. (2016) stated that many internationally focused studies "either cover a set of more similar countries (mostly in the West) or focus on a fairly narrow aspect of climate coverage (e.g., climate skepticism, which is not salient in the material we study) or investigate issue attention rather than issue framing" (427). With this country selection, system characteristics are "as similar as possible in a global study by choosing democracies only" (ibid.), though aspects such as contribution to and vulnerability to climate change are different.

5.2.2. Selection of the media outlets

The study analyses online articles from sources that are particularly influential in their respective national context with archives of coverage that can be easily accessed after its publication. The two main reasons for this choice are (1) the general relevance of online media in the media mix and (2) pragmatic factors of access possibilities.

(1) The analysis focuses on online articles from different leading, quality media that have been shown to have influence on public debates based on their reputation, their circulation or readership and their agenda-setting influence on other media outlets (Schäfer, Scheffran & Penniket 2016). This means that "beyond directly reaching their readers, these newspapers also influence news coverage in secondary sources" (Boykoff 2007: 471). For example, reporters or editors frequently consult these media for cues on what is viewed as 'newsworthy', and they hence have an intermediate agenda-setting effect. Analysing news coverage of these news media therefore "provides opportunities to track the dominant news frames associated with anthropogenic climate change" (ibid.). A drawback of using quality media is that they are "not equally important across social strata, and they have smaller audiences than, for example, television or tabloids" (Schmidt & Schäfer 2015: 538). Tabloids are excluded from the research, even though they have a large circulation because there is a relative lack of interest in serious reporting on international news story (Harcup & O'Neill 2010).

(2) With media such as television and radio, the access to archives can be connected to pragmatic challenges, rendering comparative analysis more difficult (Schäfer, Scheffran & Penniket 2016). In contrast, the collection, storage, and digital coding of online newspaper articles prove to be more easily accessible, therefore offering a simpler way of collecting and analysing data in a quantitative content analysis.

Before selecting the websites for the analysis, specific criteria for the selection process were determined to guarantee a level of comparability. Of course, the media landscapes in each of the countries are unique with different systems of private and state-owned companies and varying levels of size and budget. Publications like *The New York Times* (US) or *The Times* (UK) have a more international reach compared to media in other countries. For these reasons, the study follows specific criteria for selecting the different outlets which presents a crucial step in a comparative analysis. Keeping in mind the scope of this research project, two media outlets were selected from each country together with *The New York Times* from the US which adds up to 15 websites in total. The following three criteria were used for the selection:

(1) The news outlets should be among the most popular media sources with a comparably high readership in each national context. Only the most prominent news sources

were considered in the selection process. The focus lies on quality media with their ability to reach a wide audience and to have inter-media-agenda-setting effects (Kamber & Imhof 2011).

(2) Following on from that, the political affiliations and the overarching tone of the media outlets were assessed by referring to past studies that investigated the countries' media landscapes. For each country, a more liberal, left-leaning and a more conservative, right-leaning source was selected. Previous studies have shown differences between media with opposing political orientations (see e.g., Carvalho & Burgess 2005, Painter & Ashe 2012), which is why this study includes two news media per country to account for different political positions and "ideological cultures" (Carvalho 2007: 223) that can be found in most national media systems.

(3) The last selection criterion was a practical one. It was checked if each source was available in the *Factiva* data set or if there were any restrictions. For example, the German newspaper *Frankfurter Allgemeine Zeitung* was initially selected as part of the data pool, however it is not compatible with the data collection platform and hence, *Die Welt* is now included instead as an appropriate alternative.

To sum up, the selection is based on (1) popularity, i.e., high readership, (2) the sources' political leaning to represent the countries' major political ideologies, and (3) data accessibility, i.e., whether the online articles can be accessed through *Factiva* or their own archiving systems (Vu et al. 2019).

5.3. Quantitative content analysis

A quantitative content analysis can be defined as "the systematic assignment of communication content to categories according to rules, and the analysis of relationships involving those categories using statistical methods" (Riffe, Lacy & Fico 2014: 3). Quantitative content analysis is a commonly used method in media studies because it is systematic and less prone to subjective selectiveness (Hansen et al. 1998). However, there has been some criticism directed at the use of quantitative analysis in media research. One of the main points of criticism refers to the positivist notion of objectivity and a lacking meaningfulness for theoretical debates (ibid.). In a study, Wozniak, Lück and Wessler (2015) note that in some cases large-scale quantitative approaches "are somewhat inept in uncovering the more complex meaning structures of media debate" (473). Thus, it is useful to combine a standardised analysis of topics in climate change coverage with qualitative methods because quantitative content analyses have clear limits "in terms of the detail and texture it can provide for analyses of meaning and discourse" (Boykoff 2007: 472). For this reason, this study combines a quantitative content analysis with interviews as a qualitative method.

5.3.1. Sample size and sampling procedure

5.3.1.1. Theoretical foundation

This study works with different sources (websites) of varying sizes, and a gap between the ideal sample and practical limitations of time and resources is not uncommon in social research. Examining all relevant content can often prove impractical when thousands of content units are in the population (Hansen et al. 1998). For conceptual and for practical reasons, this study works with a smaller sample to answer the research questions (Riffe, Lacy & Fico 2014). A sample presents a subset of units taken from the entire population that is being studied. The challenge is to collect a sample that will allow valid conclusions about some larger group without taking excessive amounts of time to complete the project.

In order to create an unbiased sample, probability samples with randomly chosen units can be selected. The idea is that each member of some population has an equal chance to be included in the sample. There are different ways to create a probability sample: Sometimes the best probability sample is a simple random sample, whereas at other times, a stratified or systematic sample works best. The systematic sampling technique according to Wimmer and Dominick (2006) "ensures that a sample is drawn from a homogeneous subset of the population – that is, from a population that has similar characteristics; homogeneity in helping researchers to reduce sampling errors" (87). Systematic sampling involves selecting every *n*th unit from a sampling frame. The number (*n*) is determined by dividing the sampling frame size (all articles in total) by the sample size. Taking every *n*th unit becomes a probability sample when the starting point is randomly determined. Efficient sampling of mass media to infer to a year's content often involves stratified sampling because mass media content varies systematically over time.

According to Rössler (2012), it is important to create a selection of news articles that is "based on a decision about proportionality" (462) when working with multiple systematic samples of different scales. For this reason, the following questions posed by Rössler (ibid.) are considered when creating an appropriate research design:

> Should any country or culture be represented with an equal number of outlets, or is this number supposed to reflect differences between the cultures (for example, media market size)? On a meso-level, should all media types be covered equally in each country sample, or does the design need to reflect that in one society radio plays a much bigger role than in the other countries under study? And on a micro-level, is it the aim for example to identify an equal number of outlets for TV or newspapers?
> (462)

This sensitivity is especially crucial in cross-cultural approaches because the results of any comparison are influenced by the sampling procedure used in the empirical analysis (Rössler 2012). And despite similar selection criteria of the websites from each country, it is practically impossible to find "functionally equivalent" (Kunelius & Eide 2012: 270) news media which fulfil similar criteria in all countries. It depends upon the study as to how inequivalence can and should be addressed in a cross-country comparison. The studies in the field of comparative analysis of climate change reporting usually employ different methods and sampling procedures and validate their approach in an individual way. Thus, there is no right way to approach this issue, the methodology simply needs to include an appropriate justification with benefits as well as possible limitations. Vliegenthart (2012) notes that in the most extreme cases, the researcher might "refrain from making any inferences about differences and similarities between groups" (491), and conclude that the data are incomparable. The author adds that "it might be that the researcher has a theoretical interest in explaining inequivalence, rather than considering it a methodological problem that needs to be solved" (ibid.). As Blumler, McLeod and Rosengren (1992) put it, comparison "is not just a matter of discretely and descriptively comparing isolated bits and pieces of empirical phenomena situated in two or more locales. Rather, it reflects a concern to understand how the systemic context may have shaped such phenomena" (7). Considering the calls to *internationalize* (Thussu 2009) or *de-westernize* research (Wang 2011), comparative studies present a special opportunity to assess cultural and conceptual assumptions in media studies. Thus, it should not be reconciled from comparing e.g., Ghana with the UK or Namibia with the US, just because the numbers of articles differ, and the samples seem difficult to compare at first glance.

With these thoughts in mind, this project aims to employ a system-sensitive model of cross-national comparative research. The level of national coverage of climate change related issues varies across the eight countries. For this reason, it is argued that even if the difference in number of articles turned out to be too great, the sets of articles could still be analysed using a standardised procedure based on the same theoretical foundation and coding technique (Esser & Vliegenthart 2017). The differences in data sets between countries already give valuable insights into the issue on a comparative level. In the words of Mancini and Hallin (2012), "theorizing the role of context is precisely what comparative analysis is about" (515). Broadbent, Sonnett and Zhengyi (2016) used a similar technique where they compared 17 societies and "some case teams coded all of these keyword articles, while others took a random sample of them for coding" (6).

The successive step is to supplement the quantitative content analysis with interviews to account for possible gaps. The main difference between the studies mentioned in the literature review and this research project is that they mostly compare coverage between countries based on a quantitative analysis of articles published in the specific time period and country. This study combines quantitative with qualitative methods to obtain a deeper understanding of the processes involved in climate change reporting. Additionally, it does not understand climate change coverage as neutral, and on the contrary aims to investigate how a global issue is reported in national news media in countries vulnerable to climate change and countries that have historically contributed proportionally more to greenhouse gas emissions. As referred to in the literature review, Midttun et al. (2015) followed a similar direction with their study by comparing media frames of climate change in developed, rapid growth and developing countries. However, they only conducted a quantitative frame analysis without talking to journalists to find out more about the reasons and the motivations behind their choices. The study conducted by Midttun et al. (ibid.) as well as all other studies mentioned in the literature review in section 3.3.5. still provide important insights into the reporting of climate change and are helpful to create a solid foundation for this research project.

5.3.1.2. Practical implications for the sampling procedure

Knowledge from prior studies in this field as well as theoretical approaches to data collection and sampling are used to create an appropriate sample size for this study. The *Factiva* database was used to collect the articles. As a control mechanism, the websites were also scanned for related articles in the selected time periods.

As an initial step, a pilot study was conducted in May 2021. This study uncovered a discrepancy in the number of articles that are published on each of the 15 websites. For example, while only around 10-20 articles were published on the Ghanaian websites in the period of observation between January 2021 and March 2021, around 1,000-2,000 articles were published on the British and German websites. Thus, the two outlets from Ghana – *The Ghanaian Times* and the *Daily Guide* – are considered as benchmarks for the minimal period of observation and the outlets from the UK or Germany as benchmarks for the maximal time frame. This means that the period of observation needs to be long enough to collect at least 100 articles from the Ghanaian websites while at the same time staying within the bounds of possibility for the other websites in terms of feasibility and manageability. After testing different time periods, eventually around 50-100 results were generated using the appropriate search functions for each of the websites in an 18-month period from 01 January 2020 until 30 June

2021. This period of observation was chosen because it allows for a detailed picture of the media coverage over a longer time frame, while still not exceeding the scope of this research.

The articles were extracted from *Factiva* using complex search functions (English and German) created especially for this study. The search functions allow for a better selection of the targeted basic population compared to fewer and less detailed search terms such as "climate change" and/or "global warming" (Boykoff & Boykoff 2007: 1194).

Search functions:

> (climat* (accord* OR action* OR activi* OR agenda* OR agreement* OR battle* OR chang* OR catastroph* OR commitment* OR commission* OR concern* OR conference* OR cris* OR damage* OR deal* OR debat* OR denial* OR denier* OR destruct* OR disaster* OR effort* OR emergenc* OR expert* OR fund* OR goal* OR initiative* OR injustice* OR insecurit* OR issue* OR justice* OR measur* OR meeting* OR mitigation* OR plan* OR poli* OR protest* OR report* OR resilien* OR risk* OR scien* OR summit* OR strik* OR talk* OR target* OR threat* OR transform* OR trend* OR warming*)) OR (greenhouse* gas* emission*) OR (global* warm*) OR (global* heat*) OR (Paris agreement) OR net zero OR (carbon emission*) OR (chang* climate) OR climate-friendly
>
> Klimaabkomm* OR Klimaaktivis* OR Klimadebatte* OR Klimaerwärmung* OR Klimaexpert* OR Klimaforsch* OR Klimafrag* OR Klimagerechtigkeit* OR Klimagesetz* OR Klimakampf* OR Klimakatastrophe* OR Klimakommission* OR Klimakrise* OR Klimaleugner* OR Klimaneutral* OR Klimanot* OR Klimapaket* OR Klimapolitik* OR Klimarat* OR Klimarevolution* OR Klimaschutz* OR Klimawandel* OR Klimawende* OR Klimaziel* OR Treibhausgas* OR Emission* OR (globale Erwaermung) OR Erderwaermung*

Subsequently, the articles were sorted according to specific selection criteria. To control for relevance, every article extracted from each website was read carefully to assess whether climate change is discussed in the article, i.e., whether at least one full paragraph focuses on an aspect related to climate change. This can include articles focusing on climate change politics and policies, climate science, causes or impacts of climate change, as well as climate justice and measures to mitigate or adapt to the impacts of global warming. If climate change is merely mentioned either in a different context or as part of an enumeration, the article is not included in the sample.

At this stage, a sample was created including all articles from each of the 15 websites. However, the number of articles especially for the *Independent* (UK), *The Times* (UK), *Die Welt* (Germany), *Süddeutsche Zeitung* (Germany) and *The New York Times* (US) were still too high in relation to the scope of this thesis. Therefore, only a sample can be coded. Before proceeding with the coding, "the news share of climate change articles" (Broadbent, Sonnett & Zhengyi

2016: 6) is calculated dividing the number of articles that focus on climate change by the total number of articles published on each website. Then, a sample for each website taking every "*n*th" article is coded according to the codebook. Per website, 100 articles are coded at a maximum and the value of "*n*" is calculated for each website individually. In this way, there is an equal opportunity for every article of the population to be selected using this sampling technique.

Due to the discrepancy between the number of articles published on each of the websites as well as the varying conditions and media landscapes, comparisons of statistical significance between the countries cannot be made. Such a procedure would require varying sample sizes for every variable and category that should be compared. Instead, the coverage of each country is analysed separately, and this provides a foundation for the interviews. The quantitative content analysis is a first step to obtain an insight into the way in which climate change is reported nationally. Additionally, as previously stated in section 5.1., a combination of content analysis with interviews can provide interesting insights into the role of news values. If news values are perceived as characteristics of certain events, they can be analysed using content analyses. However, if news values are understood as journalistic selection criteria, then interviews with journalists are necessary to understand the processes behind the reporting (Eilders 2016).

The following table is included to glean an impression of the level of coverage and the discrepancy between the countries and websites. The table provides the total number of articles that were identified using the search functions, the relevant articles that focus on climate change, and the final sample size including the articles that are coded and analysed in the quantitative content analysis:

Table 1: Websites and sample

Country	Website	Articles in total	Relevant articles*	Sample size
Ghana	*Ghanaian Times*	109	55	55
	Daily Guide	83	44	44
Kenya	*Daily Nation*	140	71	71
	The Standard	290	161	100
Namibia	*The Namibian*	263	127	100
	New Era	128	92	92
Nigeria	*The Guardian*	1,120	241	100
	Vanguard	607	273	100
South Africa	*Sunday Times*	137	86	86
	Mail & Guardian	289	164	100
Germany	*Sueddeutsche Zeitung*	3,168	536	100
	Die Welt	9,298	1,989	100
UK	*The Times*	3,423	1,160	100
	The Independent	6,794	2,170	100
US	*The New York Times*	4,859	1,347	100
			Sample size:	**1,348 articles**

*Relevant articles include articles where at least one full paragraph focuses on an aspect related to climate change. If climate change is merely mentioned either in a different context or as part of an enumeration, the article is not included in the sample.

The table shows the steps taken in the preparation for the quantitative content analysis. In short, first, the search function was entered in the *Factiva* database to extract all articles mentioning one of the search terms. Then, in a second step, all articles were read carefully to identify the relevant articles that focus on climate change related issues in at least one full paragraph, as explained at the beginning of this chapter. Finally, 100 articles at a maximum were coded from each website which were randomly chosen (every "n^{th}" article). For example, every relevant article from the two Ghanaian websites was coded, while only every 5^{th} article was coded in the sample from the *Süddeutsche Zeitung*. In total, 1,348 articles are included in the sample. The meaning and the context of these numbers are analysed in more detail in section 6.2. of this thesis.

5.3.2. Codebook and coding procedure

A codebook (see appendix 1) was created to systematically extract the necessary information from the articles and to help answer the research questions. The preparation of a systematic coding scheme was essential to transform written texts into numbers. The codebook functions as a guideline to ensure a systematic process of content analysis.

The literature relevant in this field has been studied in advance to ensure validity of the coding units. The codebook aims to guarantee replicability of research, refering to the

possibility for other researchers "to replicate the research to confirm or challenge the results" (Macnamara 2005: 13). This presents a key feature for scientific research.

A first draft of the codebook was tested in a pilot study conducted in May 2021. Most categories were formed deductively prior to the analysis. The pilot study was not only used to get a better feeling for the data, but also to test the codebook for its manageability and its meaningfulness. In addition to the deductive codes, some categories were developed inductively from the material following the pilot study. Each article was analysed and then re-read in the perspective of the themes and frames that were formed. The final codebook is separated into two sections: (1) a coding sheet with all relevant categories and the respective codes and numbers, and (2) a detailed explanation of the codes to ensure the possibility to reconstruct the coding procedure and to have solid codes without unnecessary room for interpretation (for more details, see appendix 1).

The coding sheet itself is separated into different sub-sections:

Section 1 of the coding sheet refers to the format of the articles. This section does not only serve an organisational purpose, but counts how many long, medium, and short articles are published, and how many of the articles are features, commentaries, or news reports. This then offers an important insight into the relative importance a website attributes to this topic.

Section 2.1. looks at the way in which climate change is presented in terms of the news peg and the main issue of the news story. The sub-categories for 'main issue' and 'news peg' were formed inductively in the pilot study to account for the variety of topics that may occur in the coverage on the different websites. On account of this, no fixed categories are applied to different samples, but the articles are coded according to their actual content. The categories function as a classifying system but should not distort the country-specific coverage of climate change.

Section 2.2. classifies the actors and the countries mentioned in the articles.

Section 2.3. is dedicated to news values. The codes are based on the original news values framework created by Galtung and Ruge (1965) and Harcup and O'Neill's (2001) revisitation of the study and their revisited version of their initial categorisation (Harcup & O'Neill 2016). The systematisations of news values were reviewed, compared, and adjusted to fit this specific study. Since Harcup and O'Neill based their study on Galtung and Ruge's framework, there is some overlap, and some news values differ only slightly in wording (e.g., the categories of "Unexpectedness" by Galtung and Ruge (1965) and "Surprise" by Harcup and O'Neill (2016)). The original study by Galtung and Ruge (1965) was published almost six decades ago, and the media system has evolved rapidly since then. This is one of the reasons why Harcup and O'Neill

revisited their study again in 2016 to account for some of the major changes in the media industry, especially the rise of online and social media. In order to create a system that is not unnecessarily complicated and without any doubling to allow for clear codes, both the theoretical approaches were synthesised in the process of creating this codebook. This allowed for a list of news values to be compiled that fit this study and the current status-quo of the media industry.

Section 2.4. presents an operationalisation of climate change frames. This section is based on the definition by Robert Entman (1993). According to Entman (ibid.), framing is "to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation" (52). Common news frames that have been identified in previous framing analyses include the *conflict frame*, *economic consequences*, *human impact*, *attribution of responsibility frame* and *morality frames* (Patterson 1993). Even though these studies did not focus on climate change reporting specifically, the frames are applicable to the issue of climate change. Following the results of this pilot study, the following frames with regard to climate change were identified: economic, human impact, environmental, political, scientific, mitigation, threat, and activism. And since this study not only investigates the reporting of climate change as such, but also includes the analysis of references to international relations and global dynamics with regard to climate change, three additional frames are included: cooperation, responsibility, and conflict. All frames were tested using a pre-examination of representative parts of the sample to test their applicability to code this kind of content. The most prominent frame(s) in each article are coded diametrically with either "1 = yes" or "0 = no". In the coding process, the researcher looked for words or catchphrases referring to each of the frames following Wozniak, Lück and Wessler (2015). If there is more than one prominent frame, they all can be included for the purpose of the analysis.

After finalising the codebook, an inter-reliability test was conducted in order to ensure its efficiency and accuracy. Reliability refers to the extent to which a measuring procedure produces the same results in repeated trials. Especially when human coders execute the content analysis, there must be clear regulations. According to Macnamara (2005), it is necessary to conduct an inter-coder reliability test to make sure that the quantitative content analysis matches scientific standards.

To test inter-reliability, this study used Lombard, Snyder-Duch and Bracken's (2002) percent agreement which examines the percentage of consensus between coders. For this, a sub-sample with 50 randomly chosen articles was created to test the reliability. According to

Neuendorf (2002), “the reliability sub-sample should probably never be smaller than 50 and should rarely need to be larger than about 300” (159). Subsequently, five coders blindly coded the intercoder reliability sub-sample in order to avoid so called ‘demand characteristic’ which means that coders try to code according to what they think the primary researcher would like to see (Macnamara 2005).

The results of 2 random coders were then compared to calculate the percentage agreement. While there is no consensus in the literature on the lowest acceptable inter-coder reliability, Neuendorf (2002) gives some orientation with a “widely accepted rule of thumb” (91) which states that correlation coefficients over 0.75 to 0.80 indicate high reliability. Similarly, Frey, Botan and Kreps (2000) perceive 70% agreement (0.70) as reliable. After the coding schedule was altered according to the results of the first reliability test, a second test was conducted with a smaller sample. For the second round, the agreements were above 80% for all sections, and the codebook was finalised.

5.4. Interviews

A qualitative approach is defined as a “research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns” (Hsieh & Shannon 2005: 1278). Boyce and Neyale (2006) defined interviews as a “qualitative research technique that involves conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular idea, program, or situation” (3).

With semi-structured interviews, in specific, the researcher does not prepare an extensive list of questions, but writes a guide that relates to the topic under investigation. While the researcher prepares a structure for the interviews, the conversation is supposed to flow naturally. There are, however, still crucial differences between semi-structured interviews and everyday conversations. This ranges from the objective to uncover something in a research process to the role allocation between researcher and interviewee. Semi-structured interviews combine structure with flexibility and are employed to gain deeper insights into a phenomenon (Ritchie & Lewis 2003). In this specific study, the interviews are conducted to understand the processes involved in climate change reporting, to hear the journalists’ thoughts on climate change coverage and what structural changes may be beneficial as well as to understand further the data obtained in the quantitative content analysis prior to the interviews.

5.4.1. Theoretical foundation

Following on from the quantitative content analysis, semi-structured interviews are conducted with (environmental) journalists in order to acquire a deeper understanding of climate change reporting in the respective countries. And, although labour intensive, semi-structured interviews are useful in generating more detailed information than a quantitative study alone. The specific method is considered most useful for this research endeavour because it enables the research to unlearn any preconceived ideas or initial questions and include details outside of the personal perspective (Hoinville & Jowell 1978). This method is perceived as particularly suitable to gather more insights into the interviewees' experiences without leading the conversation into a predetermined direction (McNamara 2009). The articles that are analysed in the quantitative content analysis show the "front-end" of climate change reporting and the interviews are then used to gain insights behind the journalistic products and into the practices and routines that go into the published product.

Journalists function as gatekeepers and influence which topics are reported in what way. Additionally, a journalist "frames the frames provided by external actors" and thereby engages in "frame setting" (Brüggemann 2014: 66). For these reasons, this study only focuses on interviews with journalists who report on the environment. Of course, the view could be broadened to also include journalists that focus on other issues with climate change being a cross-cutting issue. However, the decision was made to maintain a more specific focus to allow for more detailed insights into what actual environmental journalists have to say.

5.4.2. Preparation for the interviews

The interview process adheres to ethical guidelines relevant for this kind of research. Prior to conducting the interviews, a detailed research proposal was submitted to the *Journalism Departmental Research Ethics Committee* which was granted formal approval on 04. May 2021. This process ensured that all interviews are going to be conducted in accordance with Framework for Good Practice in Research by *City*, *University of London*.

The interviews followed a guide list of questions (see appendix 2). These questions were devised to capture a wide range of factors – including editorial choices, news values, structural issues, national versus international issues, when it comes to covering the climate crisis as well as challenges and hopes for the future. As previously mentioned, this style of interview is perceived as particularly useful for this objective (McNamara 2009). While the interviewees

were mostly asked similar questions, every conversation went down a slightly different path depending on the interviewees' experiences and answers.

The guide for the semi-structured interviews is structured in seven main sections. The interview is opened with an introduction. Writing this with the experience from the interviews, this often led to follow-up questions about their interest in the environment and the career steps that eventually influenced them to focus on this specific topic. Following on from that, the second section focuses on the general perception of climate change coverage in the specific country and within their specific media company: *What are some of the most used contexts in which climate change is reported?* or *Which sections of the website most commonly include topics related to climate change?* The next two sections are targeted more towards the news values and the editorial choices behind the climate change coverage: *What do you think a climate change related story needs to make the news / be reported?* or *How is climate change reported? (as an environmental issue, as a social justice issue, as a political issue, ...)*. Where appropriate, questions about the organisational structure in the respective newsrooms or at the media companies were inserted as part of section six. In most cases, the journalists referred to a person or an initiative that really tried to push this topic on the agenda. The penultimate section of questions focuses on the distinction between reporting on climate change as a national issue versus that on climate change as a global challenge. There, some of the journalists referred either to the concept of climate justice from a global perspective or the recent COP26 conference and its coverage by the media. Lastly, the final section asks about an outlook on the development of climate change reporting in their personal and professional opinion, and what they wish for in the future.

The reason behind using a guide list of questions was (1) to have a clear focus for each interview and (2) to generate rich data relevant for this research project. The issue of "messy data" (Lester 1999) is often associated with phenomenology; thus, a topic guide helps to ensure a focus and prevent digressing from the research objectives, while still allowing for a natural flow of conversation.

The selection criteria for the interviewees include a background or some form of expertise in climate or environmental reporting. Here, the quantitative content analysis helped identify relevant journalists who have written articles during the period of observation. The inclusion criteria are mainly based on the profession and the country in which the respondents work. Age, gender, country of birth or any other personal characteristics are not relevant as inclusion or exclusion criteria, as long as the respondent has some experience in climate change reporting and writes for an outlet that is situated in one of the selected countries.

Potential journalists who fit these criteria were contacted via email with some initial information about the project. Since the sample size in qualitative research is usually smaller than in quantitative research, 18 journalists were interviewed. There are no commonly accepted guidelines in qualitative research for the number of interviews that is necessary to collect enough data. Usually, the concept of saturation is used as an important "factor to think about while trying to make sample size decisions in qualitative research" (Mason 2010). Similarly, Charmaz (2006) states that research on a specific topic is saturated "when gathering fresh data no longer sparks new theoretical insights, nor reveals new properties of your core theoretical categories" (113). However, in some cases it is not feasible to reach complete saturation due to a highly heterogeneous research sample or other practical reasons such as unwillingness of interviewees to participate in the research. In this case, a research project can still present interesting findings and be useful without having a complete saturation. For this specific project, the interviews are combined with a quantitative content analysis as both contribute to gaining insights into the topic.

At least two journalists were interviewed per country. Three journalists were interviewed from Germany and the UK, mostly due to the fact that more journalists replied to the interview invitation than expected – keeping in mind that several invitations were sent out without getting a reply. In the interview process, similar themes arose repeatedly. For this reason, it was decided that a good amount of data had been collected – in addition to the data collected in the proceeding quantitative content analysis.

5.4.2. Interview process

Two pilot interviews were carried out with journalists prior to conducting the full interviews. One interview was conducted with Nana Ama Agyemang Asante, a journalist from Ghana. The second pilot interviewee was Rabiu Alhassan who works as a journalist in the UK and is originally from Ghana. Both pilot interviews did not follow a semi-structured interview guide because this was done at an early stage of the research project. Instead, the interviews were used to gain insight into the experiences of the two journalists and to get an idea of interesting topics for the interviews. Since both journalists are from Ghana, though they have worked in other countries, most of the conversation focused on the Ghanaian media landscape and the issues and challenges for climate change reporting in this context. Because the pilot interviews were more informal, they were not recorded, but notes were taken during the interviews. The aim –for the pilot interviews and the other interviews – was "to illuminate the specific, to

identify phenomena through how they are perceived by the actors in a situation" (Lester 1999:1).

Following this, journalists from the eight different countries were identified as potential interviewees for this research project. At the beginning of November 2021, several journalists were contacted; about half of the emails remained unanswered or journalists said that they are not available for an interview. There were, however, several positive replies so that there was no issue with conducting a sufficient number of interviews.

The interviews were conducted during the COVID-19 pandemic between mid-November 2021 and the end of January 2022; and with financial and time constraints in mind, they were all done virtually. Despite the logistical factors and restrictions, there are some benefits of doing interviews online. One benefit is the ability to speak to a wider array of interviewees from multiple different countries. In connection to this, the online space may even be perceived as more accessible with the possibility to have meetings wherever you are. This level of flexibility and immediacy can also be helpful when short follow-up interviews are necessary. Despite these potential benefits, meeting experts in person is always a valuable experience but was not within the realms of possibility for this specific study design – also considering the restrictions due to the pandemic.

The interviews lasted on average 45 to 50 minutes. All interviewees were made familiar with the interview process and received a participant information sheet prior to the interview. All interviews were recorded either on *Zoom* or *Microsoft Teams* to aid the transcription process. The interviews, except for the three interviews with journalists from Germany, were conducted in English. The relevant quotes from the German journalists were translated by the researcher as a native German speaker. The translation was then checked by the researcher's supervisor who also speaks English and German to guarantee a four-eyes principle.

When filling out the consent from, 9 out of 18 journalists wished to remain anonymous. In November 2022, the journalists were sent the direct quotes that are included in the study and whether or not they still wish to remain anonymous. Only five journalists wished to remain anonymous while all others agreed to be referenced by name. The journalists who wished to stay anonymous are referenced with a country code (e.g. Int. KE 1) in the analysis.

The full interview log is included on the following page (The names of the five journalists will be anonymised before publication.):

Table 2: Interview log

	Date	Country	Name	Position / outlet	Code
1	16.11.2021	Ghana	Frederick Duodu Takyi	Environmental journalist at *Daily Guide*	Int. GH 1
2	16.11.2021	Ghana	Sharon Willis Brown-Acquah	Environmental journalist at *Daily Guide*	Int. GH 2
3	17.11.2021	Nigeria	Kingsley Jeremiah	Energy correspondent at *The Guardian*	Int. NI 1
4	17.11.2021	South Africa	Leonie Joubert	Science and environmental journalist (freelance)	Int. SA 1
5	18.11.2021	Kenya	anonymous	Environmental journalist at *Daily Nation*	Int. KE 1
6	22.11.2021	Germany	anonymous	Media journalist focusing on climate change reporting	Int. GE 1
7	22.11.2021	Nigeria	Ugochi Anyaka Oluigbo	Environmental journalist (freelance)	Int. NI 2
8	24.11.2021	South Africa	Sipho Kings	Editorial Director, *The Continent*; Former editor-in-chief at *Mail & Guardian*	Int. SA 2
9	03.12.2021	Germany	anonymous	Environmental journalist at *Süddeutsche Zeitung*	Int. GE 2
10	20.12.2021	Germany	Ricarda Richter	Environmental journalist at *GREEN* (by *ZEIT*)	Int. GE 3
11	05.01.2022	UK	Catherine Early	Environmental journalist (freelance)	Int. UK 1
12	05.01.2022	US	anonymous	Environmental journalist at *Grist*	Int. US 1
13	12.01.2022	UK	Isabelle Gerretsen	Environmental journalist (*BBC*, *The Independent*, *Climate Home News*)	Int. UK 2
14	14.01.2022	Namibia	Teneal Koorts	Environmental journalist and contributing writer at *Climate Justice Central Blog*	Int. NA 1
15	17.01.2022	UK	anonymous	Environment correspondent at *The Guardian*	Int. UK 3
16	19.01.2022	Namibia	Yokany Oliveira	Environmental journalist and contributing writer at *Climate Justice Central Blog*	Int. NA 2
17	28.01.2022	US	John Schwartz	Science and climate reporter at *The New York Times*; Professor in Journalism and Media at the University of Austin	Int. US 2
18	01.02.2022	Kenya	Lynet Otieno	Environmental journalist at *The Standard*	Int. KE 2

5.5. Limitations

One limitation, especially in the case of the quantitative approach, was the need to reduce the outlets and articles in order to create a manageable sample. This research design still tries to mitigate making any generalisations and instead uses additional interviews to complement the data from the quantitative content analysis.

Additionally, there may be the possibility that some articles that were published in the period of observation were not presented on *Factiva*. Furthermore, especially in the African countries, people "tend to consume their news through television or radio hence broadcast media" (Tagbo 2010). However, collecting data from broadcast coverage would have been more complicated, and creating a large enough sample for this study in addition to the interviews could have potentially exceeded the limited time frame for this project.

6. Main issues and news values

6.1. Introduction to the three analysis chapters

The analysis is split into three chapters that are structured along the research questions. As the chapters proceed, the analysis dives deeper into the intersections between climate change and journalism and looks at how national and international agendas and focus points influence the reporting of climate change. Chapter 6 focuses on the content of the online articles and aims to answer the first set of research questions: *Which main issues are reported in the articles with regard to climate change?* (RQ 1a) and *Which are the most prominent news values?* (RQ 1b). Chapter 7 then looks at how climate change is framed with regard to national and international issues (RQ 2). The first two analysis chapters, chapter 6 and 7, primarily analyse the results from the quantitative content analysis and draw on sections from the interviews with journalists where appropriate. By means of this, the results from the content analysis are enriched by the insights provided by the journalists who report on climate change.

Chapter 8 seeks to answer the third set of research questions, starting with section 8.1.: *Which structural or content-related issues influence the reporting of climate change?* (RQ 3a). The last section of the analysis, section 8.2., takes the insights from the previous sections into consideration to answer the final research question (RQ 3b): *How are international power relations (re)produced through media discourse about climate change in African countries in contrast to countries in the Global North?*

There is no strict distinction between the analysis and the discussion. In the research process, it evolved naturally that the analysis already encompass the discussion. For this reason, it seemed appropriate not to make any unnatural divisions between analysis and discussion but rather to allow for a more natural flow of the three chapters. Section 8.3. provides a summary of the three analysis chapters, followed by the final conclusion chapter.

6.2. Distribution of articles according to website

The following section presents data gathered in the quantitative content analysis based on a research sample of 1,348 news articles from 15 different websites published over a period of 18 months with a focus on climate change. Before going into detail about the results from the quantitative content analysis including issues, actors and countries referred to in the articles, the discrepancy between the number of articles published on each website should be addressed

first. This is followed by the presentation of the data and their analysis in the context of the research questions. Semi-structured interviews were conducted in addition to the quantitative content analysis to add some insight into the journalistic structures and processes beyond the content level.

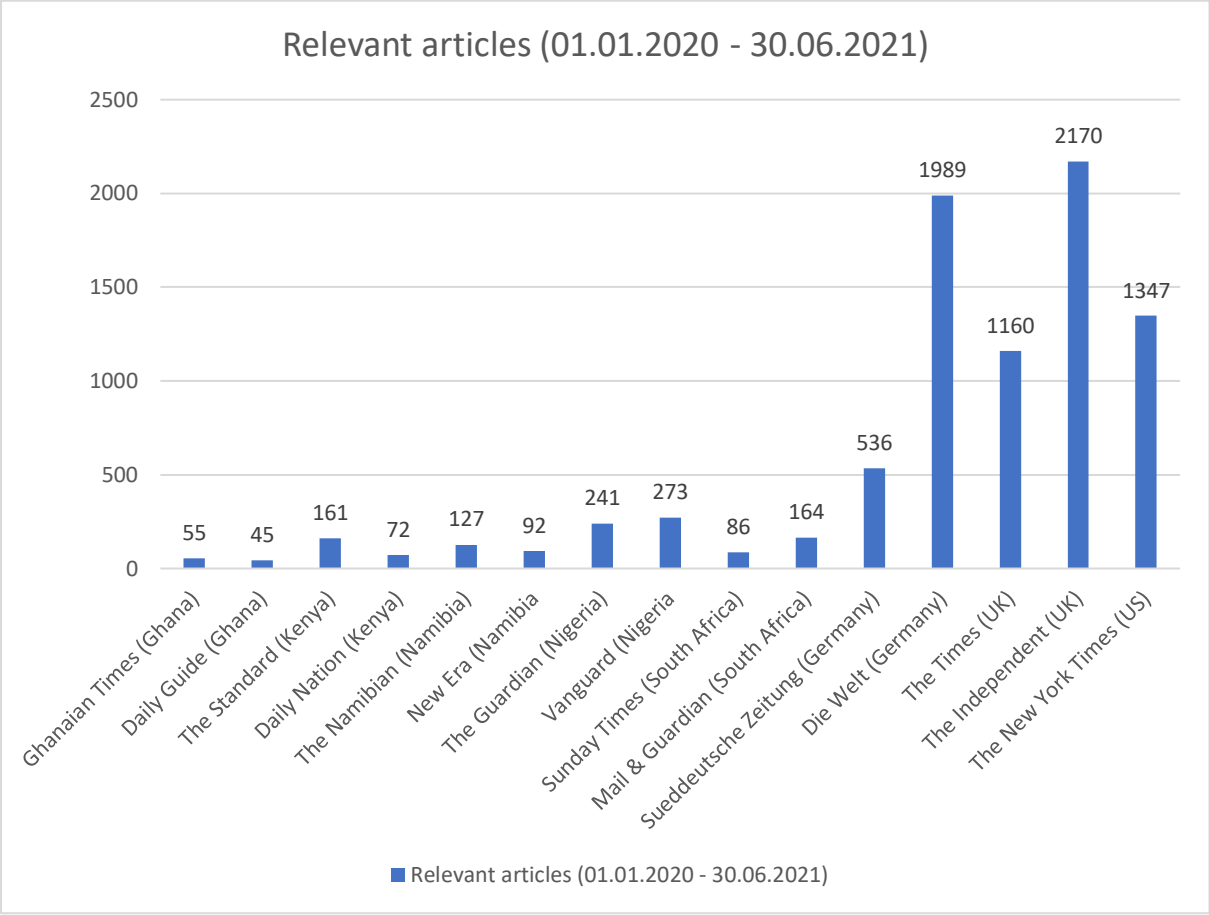
The concept of climate change presents an interesting subject for cross-cultural comparisons of media coverage for different reasons: First, the scientific concept of climate change has become affected by norms and values which are often defined by national boundaries (Dunwoody & Peters 1992, Brossard, Shanahan & McComas 2004). Second, by exceeding the scientific sphere, climate change has become a political issue influencing the media coverage which is connected to different political cultures and agendas. Third, climate change is a global issue affecting every part of the world to varying degrees (Brossard, Shanahan & McComas 2004). The concept of climate change has become multifaceted with varying interpretations and attributions of meaning depending on the context. With this development, the lines between its scientific definition and individual understanding and interpretation have become blurred.

This study analyses the coverage of climate change on 15 news websites from eight different countries, and despite similar selection criteria of the websites, it was not possible to find "functionally equivalent" (Kunelius & Eide 2012: 270) news media which present the same levels of climate change coverage. The process behind the quantitative content analysis was explained in detail in section 5.3. of the methodology chapter. And while it is no longer the aim to compare countries and websites of similar size and reach but rather to see them as individual cases, the varying numbers of articles on the websites are addressed in the following section together with initial observations in preparation for a more in-depth analysis.

As explained in section 5.3., different selection criteria were applied to identify the countries for this study. The aim was to include countries with varying obligations to reduce their greenhouse gas emissions as well as varying degrees of vulnerability to climate risks (Schäfer, Ivanova & Schmidt 2013). A pilot study conducted in April and May 2021 revealed a noticeable discrepancy between the numbers of articles. While countries such as the US and the UK published around 1,500 articles per website in the 3-months period of observation between January and March 2021, the two Ghanaian websites published only around 10 articles. These initial numbers made clear that the coverage of the 15 websites cannot be compared directly due to a high degree of variation in the number of articles, which can be attributed to different national structures and media landscapes.

A similar trend was observed when collecting the articles for the actual content analysis. While this time *Die Welt* (Germany) and *The Independent* (UK) published the highest number of articles, the two Ghanaian websites published only a small number of articles in the period of observations related to climate change. The exact numbers are presented in the following graph:

Table 3: Relevant articles (01.01.2020 – 30.06.2021)



The graph illustrates the differing article numbers between the websites and countries. However, it is crucial to go one step further and put these absolute numbers into context by relating them to the total number of articles published on each website in the period of observation. Wirth and Kolb (2012) underline the importance of functional equivalence when conducting comparative studies that look at different countries or regions. This means that it is problematic to simply compare absolute numbers between different media outlets and countries because the media companies vary in scope and resources: For example, a small media company with only a couple of journalists could publish less articles on climate change compared to larger companies but still have a higher attribution of relevance to climate change related issues (Schmidt 2016).

By looking more closely into the relation between articles that focus on a climate change related issue and all articles published on the website in a specific period of time, it is possible to make inferences about the importance a media company attributes to climate change reporting in relation to other issues. To ensure cross-country comparability, the total number of articles published in the 18-months period was identified by using 'blank' searches in the database *Factiva*. With this number, the percentage of the relevant articles focusing on climate change in relation to the total number of articles could be calculated. The percentage numbers give an idea about the significance of climate change in the overall reporting. At this point, it is important to emphasise again that the relevant articles focus specifically on climate change and do not include articles mentioning climate change only once as part of an enumeration (for more details, see section 5.5.1.). The numbers can only offer an idea about the share that climate change related articles have of the total coverage; of course, it cannot be ruled out that not every single article covering climate change was identified using the search functions on *Factiva*. With this preface, the numbers for each website are listed below:

Table 4: Data collection and number of articles

Country	**Website**	**Relevant articles**	**Total number of articles**	**Percentage of relevant articles** (rounded)
Ghana	*Ghanaian Times*	55	10,027	0.55%
	Daily Guide	45	11,258	0.40%
Kenya	*The Standard*	161	21,396	0.75%
	Daily Nation	72	9,376	0.77%
Namibia	*The Namibian*	127	15,690	0.81%
	New Era	92	8,281	1.11%
Nigeria	*The Guardian*	241	59,670	0.40%
	Vanguard	273	58,527	0.47%
South Africa	*Sunday Times*	86	9,024	0.95%
	Mail & Guardian	164	5,878	2.79%
Germany	*Sueddeutsche Zeitung*	536	48,459	1.11%
	Die Welt	1,989	300,244	0.66%
UK	*The Times*	1,160	95,129	1.22%
	The Independent	2,170	157,743	1.38%
US	*The New York Times*	1,347	91,559	1.47%

The share of articles reporting on climate change range from the lowest share of 0.40% on the Ghanaian website *Daily Guide* and 0.40% on the Nigerian website *The Guardian*, to the highest share of 2.79% on the South African website *Mail & Guardian*, followed by 1.47% on *nytimes.com* and a share of 1.38% on *theindependent.co.uk*. This shows that while websites such as *Die Welt* published the second highest number of articles on climate change, the share

is slightly lower with 0.66% compared to other websites. Thus, merely because the absolute number of articles is low compared to other news websites, the significance of climate change coverage in comparison to all other articles does not necessarily have to be as low. This is the case for *Mail & Guardian*: While the website published 164 articles on climate change in the 18-months period – which may seem low compared to other websites and countries – the share is the highest for all 15 websites with 2.79%.

Mail & Guardian stands out for its comparably high share of climate change coverage. This could be explained by the fact that the media company joined the international initiative *Covering Climate Now* in 2019 to extend their thematic focus on climate and environmental issues. This step and its implications will be addressed in more detail in section 8.1.3. This section includes an interview passage with former editor-in-chief at *Mail & Guardian*, Sipho Kings, who initiated this project at his company.

Generally speaking, the relation between the entire content on a news website and articles focusing on climate change gives a first impression about the level of attention placed upon this issue. While the "carrying capacity" (Hilgartner & Bosk 1988: 58f.) of online news media is theoretically not limited to pages or airtime minutes, they still can only cover a finite selection of issues depending on resources and staff. Without going into too much detail at this early stage of the analysis, the attention for the issue of climate change relative to others has agenda setting effects on the audience (see e.g., Sampei & Aoyagi-Usui 2009). This means that the more attention the issue of climate change receives, the more likely it is for audience members to perceive it as important (Schäfer, Ivanova & Schmidt 2013). Thus, the numbers in the table above give insights into the issue attention and also ensure "functional equivalence" (Esser 2010: 9) of the measurements, which is "particularly necessary for comparative studies" (Schäfer, Ivanova & Schmidt 2013: 160).

The numbers that are presented here already carry meaning and can be interpreted in the light of recent studies on climate change reporting in a cross-country comparison. For example, these numbers align with the results that Schäfer, Ivanova and Schmidt (2013) obtained in their quantitative content analysis looking at the time span from 1997 to 2010. While they analysed the reporting in India, Australia and Germany, the results are similar with a relative share of climate change coverage ranging from 0.28% in India and 0.41% in Germany to 1.42% in Australia (ibid.). According to this study, media attention expanded in all three countries around 2007 (ibid.). Since the study looked at different time frames and different countries, there is no functional equivalence between both studies. However, it is interesting to

see that the level of climate change coverage does not vary drastically between both studies despite a rising focus on the issue within the political and the public agenda.

6.3. Distribution of articles over time

The distribution of articles relating to climate change over the 18-month period of observation provides insights about events that may have triggered an increase in climate change coverage and, conversely, exposes periods where media attention on climate change was lower. While media attention over time has not been traced for every website, some details are presented and analysed in the following.

Towards the end of the 18-month period, climate change coverage in Ghana increased, especially in the *Daily Guide*, possibly due to the launch and the successful execution of the Green Ghana Project. The project helped plant more than 5 million trees across the country "to restore Ghana's lost forest" (Daily Guide 2021). The graphs below present the distribution of articles over time for the Ghanaian and the Namibian websites to give an impression for possible reasons, such as national projects like the Green Ghana Project, that may have influenced the level of coverage.

Table 5: Ghanaian Times (Ghana)

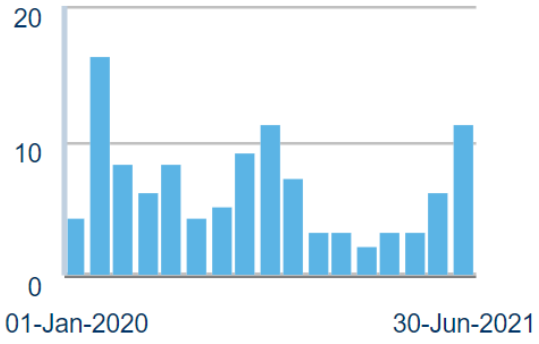


Table 6: Daily Guide (Ghana)

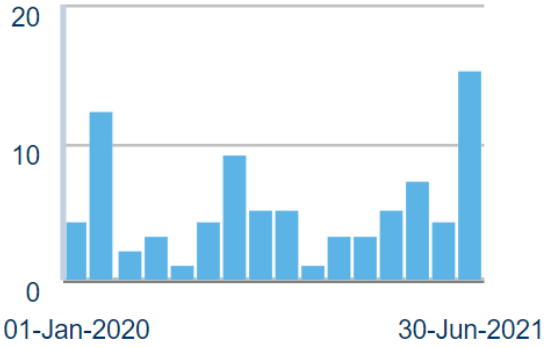


Table 7: The Namibian (Namibia)

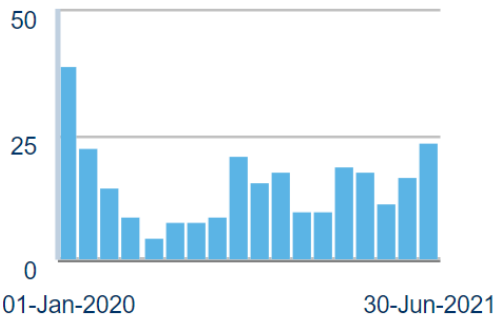
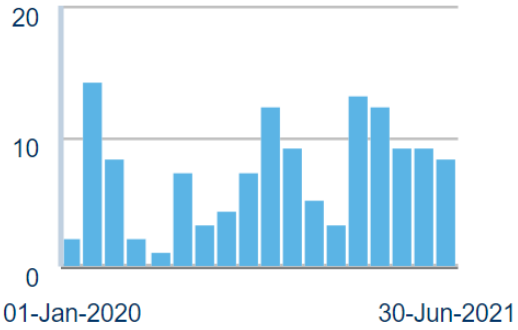


Table 8: New Era (Namibia)



The climate change coverage on the two Namibian websites was particularly high during January and February 2020. One issue picked up quite frequently in the articles during this time was a persistent drought with severe effects on the country including food shortages and crop losses (see e.g., New Era 2020a, Tjiseua 2020). Here, a domestic extreme weather event increased media attention, and which the journalists then connected to climate change. For example, a couple of articles referred to the drought and its immediate consequences, and then discussed further the impacts of climate change and the disaster risk management that is needed in the future; for instance: "Lastly, while what we discussed above are seasonal short-term coping strategies, farmers are encouraged to embark on a transition to become resilient against climate change." (Tjiseua 2020; see also New Era 2020a, New Era 2020b, New Era 2020c). Other articles referred to climate change, its impacts and possible mitigation strategies first, and then referred to the recurrent droughts in the country since 2013 as an example of the consequences of global warming (see e.g., New Era 2020d, New Era 2020e).

Table 9: Die Welt (Germany)

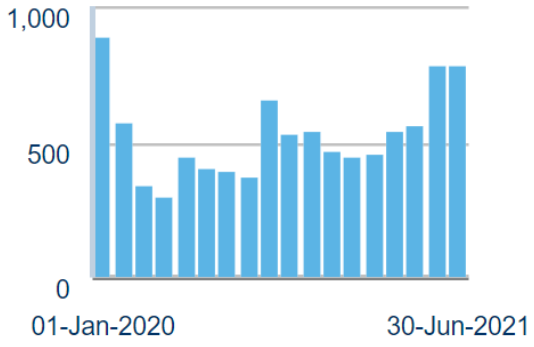
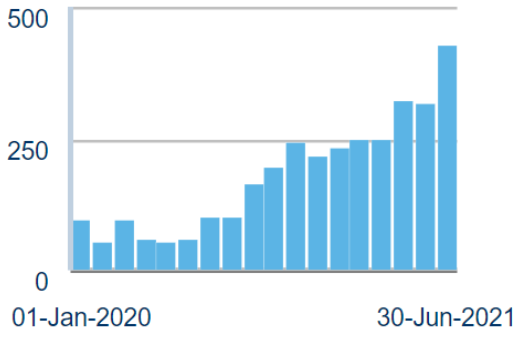


Table 10: Süddeutsche Zeitung (Germany)



A recurring issue covered by the German websites were the bushfires in Australia especially at the beginning of 2020. From September 2019 until March 2020, Australia had "the most catastrophic bushfire season ever experienced in the country's history" (WWF n.y.). The online coverage of *Die Welt* shows that its highest level of climate change coverage in early 2020 was predominantly tied to the bushfires happening in Australia at the time. Even though this extreme weather event happened on a different continent, it was still part of the German media agenda and increased the media attention of *Die Welt*, one of the leading national news platforms.

In contrast to that, the climate change coverage by the *Süddeutsche Zeitung* increased gradually from 01 January 2020 to 30 June 2021. This gradual increase coincided with the early stages and the continuing process of the election campaign for the 2021 German federal elections. Towards the end of the observation period, several articles reported on statements

from different politicians with regard to climate change and its interpretation in the election programmes (see e.g., Die Welt 2021a, Die Welt 2021b, Rabe 2021, Fried 2021). In addition to the national perspective on climate change, the media attention also increased in connection to the G7 summit in Cornwall in June 2021. The focus on climate change, however, was rather limited in the articles relating to the G7 summit and only a couple of articles referred to climate change in greater depth (see e.g., Bauchmüller & Hulverscheidt 2021).

The specific issues that are covered in the articles are to be analysed in more detail in section 6.5. This section aimed to give an overview of the level of climate change coverage on each website and its development in the period of observation. As the "'interpretative system' of modern societies" (Schmidt, Ivanova & Schäfer 2013: 1233), media provide a space where issues related to climate change can be "publicly created, debated, and bounded" (Ford & Kind 2015: 144). Thus, the level to which a widely read news medium covers climate change can influence the level of awareness in society. In general, mediated climate change communication is referred to as "an integral instrument to engage and motivate the public for climate actions" (Okoliko & de Wit 2020a; see also Hart, Nisbet & Myers 2015, Nisbet 2009). More specifically, the media function as the main source for understanding climate change and other related scientific issues which cannot be experienced directly in people's everyday lives (Nelkin 1987).

After mapping the dimensions of difference regarding the level of coverage as a first overview, the categories and codes focusing on news pegs, main issues, news values and frames used in the articles are analysed in the following sections.

6.4. Connecting style and content: Types of journalistic texts

After looking at the numbers, the characteristics of the articles are now presented and analysed in the context of the research questions. The 100 articles per website can only account for a small share, especially for the German and the British websites and *The New York Times* website. Due to an equivalence of methods and the procedure of random sampling, the data can still provide a good impression of the coverage on the 15 websites. To account for any gaps in the quantitative content analysis, interviews were conducted to round up this research project.

6.4.1. Length

Looking at the length of the selected articles, the British and the Namibian websites have a similar distribution: One half of the articles ranges from 301 to 600 words, followed by roughly a third of the articles that count 601 to 1000 words. Thus, most articles range in the mid-section

and only a small share is less than 300 words or exceeds 1001 words. This suggests that the four websites, *The Namibian*, *New Era*, *The Times*, and *The Independent*, have similar structures in terms of length when covering climate change related issues.

The group of the Kenyan, the Nigerian and the German websites show similar results in their coverage when it comes to the length of the selected articles. The four websites *Die Welt*, *Die Süddeutsche Zeitung* (Germany), *Vanguard* and *The Guardian* (Nigeria) present a more diverse range in lengths as opposed to the UK or Namibia. While most articles on the Kenyan, the Nigerian and the German websites range somewhere between 301 to 600 words and from 601 to 1000 words, there is also a considerable share of articles that exceed 1001 words. *The New York Times* is a special case in itself because almost two thirds of the selected articles are longer than 1001 words suggesting that *The New York Times* covers issue relating to climate change in an extensive and detailed manner.

6.4.2. By-lines

A clear majority of all selected articles has been written by journalists who work at each of the media companies. Some websites do not include a by-line. This either means that these articles have been written by journalists from the media company or were taken from news agencies and then published on the respective website. About a quarter of the selected articles published on the Ghanian, the Nigerian and the German websites were taken from international news agencies. Additionally, the two Kenyan websites and the two British websites published articles from guest authors that make up about 10% of each sample. The category of guest author, in this context, refers to a person who wrote a comment piece on a specific topic. This person could be a politician, a scientist, or some kind of public figure writing about an issue that relates to their position or experience.

6.4.3. Types of journalistic texts

The majority of the selected articles are news stories with the intention to inform and report on recent events (some 70%). Namibia, Ghana, Nigeria, and the UK – with about three quarters each – mostly cover climate change as a news story, with a small share of opinion pieces. The two Kenyan websites include the most variety of journalistic text forms with opinions, features, and interviews. Similar to the category of length, *The New York Times* stands out when it comes to the distribution of different formats. While more than half of the selected articles are news stories, about a third of the articles are opinion-based and 12% are features. These results may

actually correspond with the fact that the articles published on *The New York Times* with a connection to climate change are proportionally longer than the articles on the other websites.

While the quantitative content analysis provides numbers about the different journalistic text forms, a number of interviewees touched upon the reasons behind some of the stylistic choices. Frederick Duodu Takyi, a Ghanaian journalist working at *Daily Guide*, differentiated between breaking news, assignments, and issues that one is passionate about. Takyi said that it is oftentimes difficult to find time to write about a passion project because it may require more time, resources and piques little interest as compared to a breaking news story: "With breaking news, it gives you no choice, so you have to do that as it becomes a priority for the moment". He continues: "If the breaking news is related to a passion project like climate change, the journalist gets an opportunity to write about the interesting topic in the moment to get the needed attention the phenomenon requires."

When it comes to the journalistic text form, a journalist from Kenya working at the *Daily Nation* expressed his opinion that "stories on the impacts of climate change" (Int. KE 1) have a greater impact on the reader than fact-focused new stories:

> When you tell people that, for instance, temperatures in a given area have increased over this period of time, sometimes it's very difficult to feel that. But when you tell them that agricultural needs have gone down because we now have more erratic rains, […] then it becomes something that people can visualize and indeed agree that climate change is real. I try to employ real stories by real people who have experienced this phenomenon.
> (Int. KE 1)

Ricarda Richter, a German journalist, made a similar point emphasising the importance of including a protagonist who is exemplary for a certain group or issue that is part of the story. This way the journalist aims to illustrate the impacts of a certain issue.

A German journalist who works for the *Süddeutsche Zeitung* emphasized the importance of offering a "Formatvielfalt" (Int. GE 2), meaning different journalistic formats when covering climate change. Additionally, the format goes beyond the written word and can also include infographics, satellite images and further information (Int. GE 2). Yokany Oliveira, a Namibian journalist, highlighted a related aspect with a focus on the usability of news websites: "[…] having articles online for this product is actually pretty useful because you get to include multimedia content to make it livelier and more informative." Lastly, John Schwartz, a former environmental journalist at *The New York Times*, made a point about the stylistic form of climate journalism: "I think the most powerful journalism shows what's going on unequivocally and without screaming. And I believe there is a place for that journalism justice, I believe there is a place for the screaming." In this context, Schwartz gave an example of a story he wrote where

he connected climate change to the readers' everyday lives: "I worked long term on longer features to talk about regenerative agriculture or I would try to do stories that focused on the effects of climate change in people's lives that were both explanatory and also persuasive". This, however, was only possible because they had "a dozen people at *The New York Times* who would hit the interesting study or story of the day and then also work long term on longer features".

6.5. Politics, agriculture, and the economy: Main issues and their connection to climate change

The first research question reviews the main issues covered in the articles – asking about what particular aspects of climate change are highlighted. This poses the question of the topics that arise most frequently in the selected articles and how they are connected to the issue of climate change. In this manner, the aspects and topics that are relevant to the particular country become subject to investigation, while it is possible to define simultaneously the topics that play only a secondary role.

A majority of the articles deal with issues relating to politics, the economy, or the environment. The following websites present a focus on politics: Germany (32%), the UK (31%), and *The New York Times* (47%). Other websites focus on the environment: Namibia (33%), Ghana (30%), and Kenya (52%). These numbers include the topic of agriculture which can also be allocated to the overriding topic of economy; that said, the way in which the websites refer to agriculture is closely connected to the environment, environmental issues, and natural resources. Lastly, *Vanguard* and *The Guardian* (Nigeria) focus mostly on economic issues when covering climate change with a share of 25%, closely followed by 24% of the articles focusing on environmental issues.

Looking at the results more closely, the following issues or aspects related to climate change are mainly covered:

- Germany: national politics (21%)
- Ghana: national politics (18%)
- Kenya: agriculture (20%)
- Namibia: agriculture (14%)
- Nigeria: international relations (12%)
- South Africa: energy sector (12,9%)
- *The New York Times*: national politics (29%)
- UK: national politics (15%)

While politics appears to be the issue that climate change is most commonly connected to, Kenya and Namibia predominantly report on climate change in connection to agricultural issues. The two South African websites regularly refer to the energy sector when reporting on climate change. *The Namibian* and *New Era* (Namibia) as well as *The Standard* and *Daily Nation* (Kenya) cover concrete issues and impacts on the agricultural sector resulting from climate change. In the articles, agriculture is connected to environmental issues on the one hand and economic issues related to the primary sector of the economy of the other hand.

Table 11: Main issue of the article (Kenya)

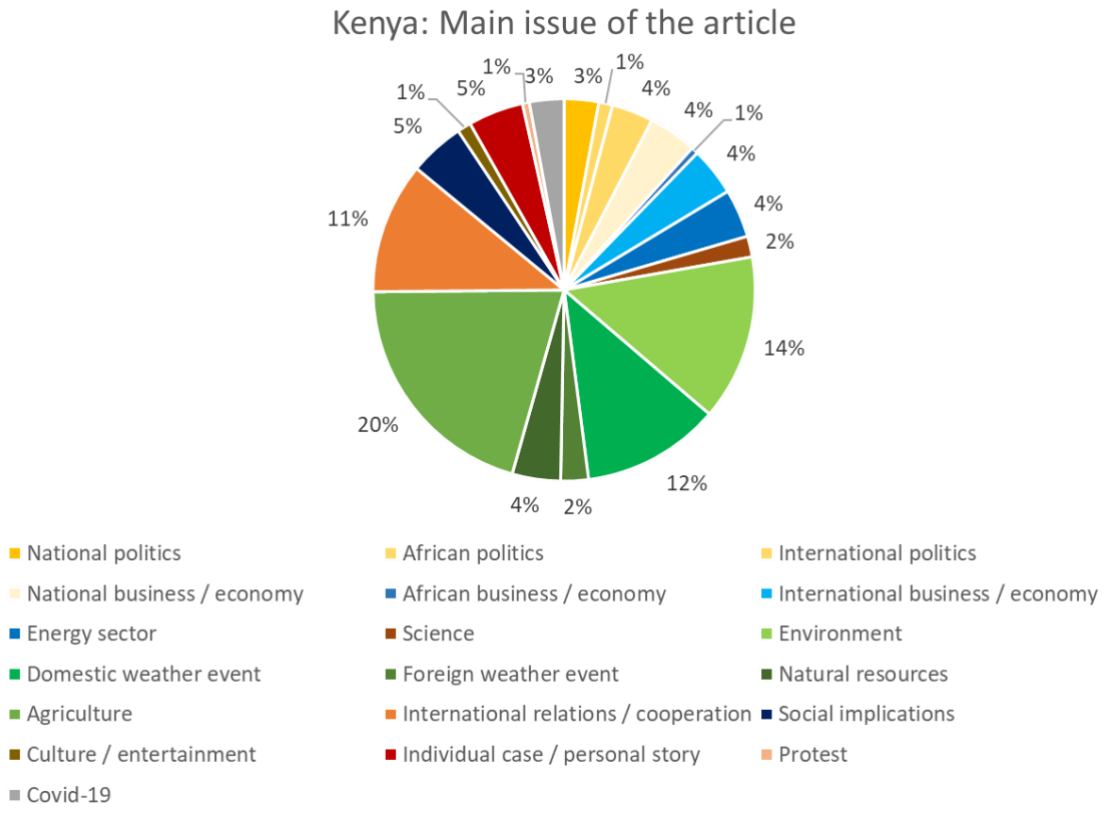
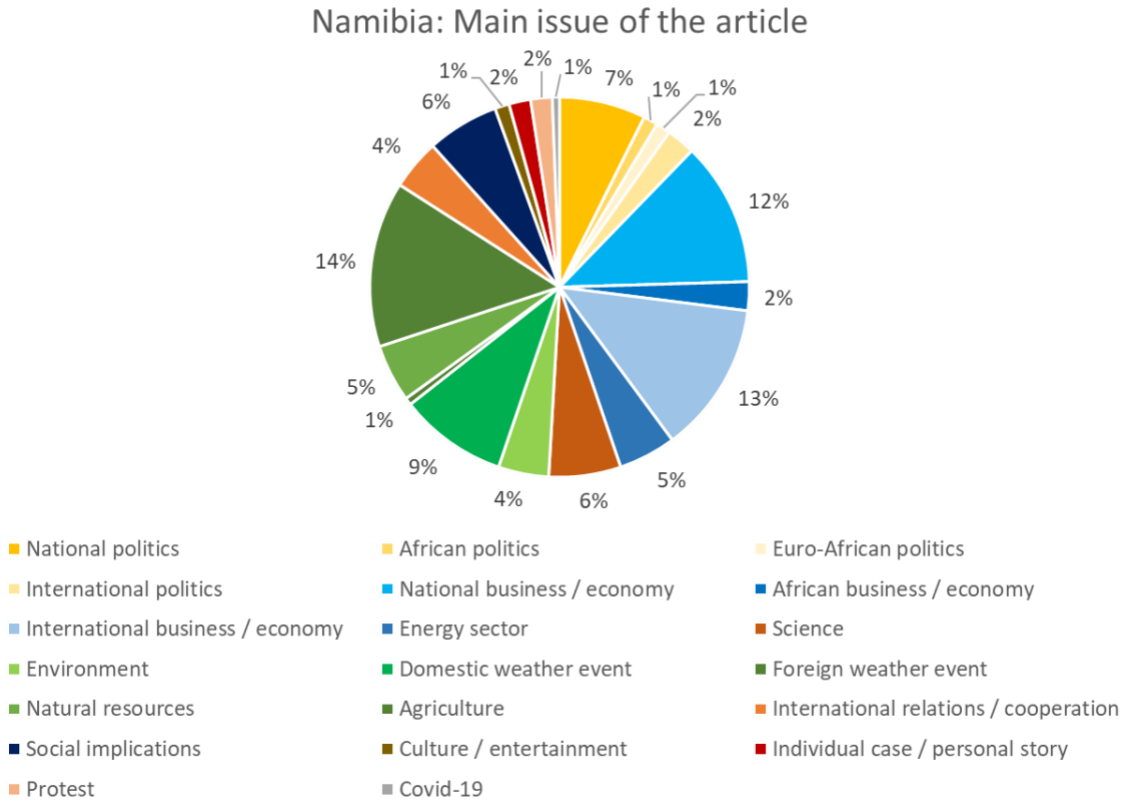


Table 12: Main issue of the article (Namibia)



According to *Statista*, agriculture is the second largest contributor to Kenya's gross domestic product (GPD) accounting for about a third of the national economy (O'Neill 2022a). In Namibia, agriculture accounts for around 10% of the economy (O'Neill 2022b). In contrast to this, the share of the primary economic sector of the German GPD – similarly in the UK, and the US – is less than 1%. In South Africa, it accounted for 2.4% in 2020 (O'Neill 2022c). In Nigeria, about one quarter of the economy depends on the primary sector (O'Neill 2022d), however, only 6% of the articles deal with a topic related to agriculture as their main issue. Teneal Koorts, a Namibian journalist, explained the focus on agriculture in connection to climate change in Namibia:

> It [climate change reporting] is connected frequently to agriculture because we had a seven-year drought that directly impacted the sector, it was horrible for agriculture in Namibia […]. And they started looking into environmentally friendly practices, they implemented regenerative agriculture in all their national plans for farmers to follow.

To sum up, this section provides a first overview over the main issues that are reported in the articles with regard to climate change (RQ 1a). Despite the differences between the selected countries in size, location, media landscapes and contribution to and vulnerability to climate change, national politics is an issue that comes up frequently and dominates climate

coverage in most countries. Kenya and Namibia have a strong focus on agriculture with economic and environmental components in the reporting.

6.6. Climate change emphasis and the role of newsroom organisation

Professional and organisational constraints have the natural consequence that every newsroom can only cover a limited number of topics. In the analysis – both the content analysis and the interviews – it became obvious that climate change is not always the main issue of the article. Two elaborate search functions (in German and English) and a systematic selection of all relevant articles prior to the coding helped to ensure that all selected articles focus on at least one aspect connected to climate change. However, this information does not allow for any assertions about the extent to which an article deals with climate change, i.e., whether it is the main issue, only part of the article or merely a side note. For example, the article "New farming method brings cheer and cash" written by David Muchui (2019) for the *Daily Nation* focuses mainly on conservation agriculture and mentions climate change and global warming only briefly as a side note in a quote with reference to a Kenyan NGO:

> 'Soil is a major carbon sink and its continued turning for planting greatly contributes to climate change', says Nixon Wafula, a field officer at Participatory Approaches for Integrated Development (Pafid), which is promoting the model as a key weapon in reviving soil fertility and addressing the effects of global warming.

The results of this category can provide interesting insights into the way in which journalists approach climate change – either as an issue that is newsworthy on its own or as an issue that is connected to another topic in order to create an interesting article.

Looking at the results, there are similarities between the graphs illustrating the emphasis that is put on climate change by the Namibian, the Ghanaian and the Kenyan websites. They all mostly include climate change as a secondary topic, which is only referenced in one part of the article instead of being the main focus. Fewer articles deal with climate change related issues in addition to another issue. Climate change is the primary focus in an even smaller number of articles. This also holds true for South Africa, though with a smaller margin.

Table 13: Climate change references (Namibia)

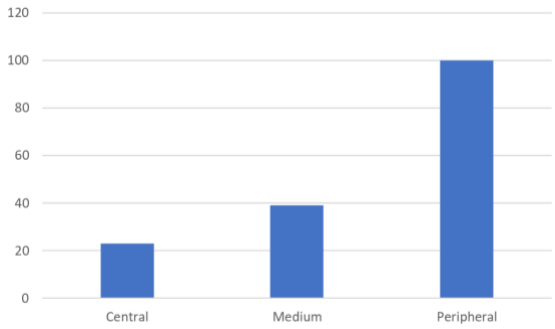


Table 14: Climate change references (Ghana)

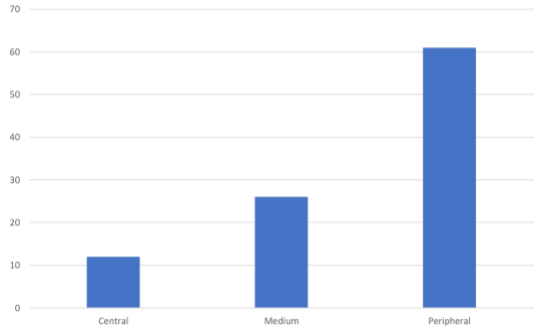


Table 15: Climate change references (Kenya)

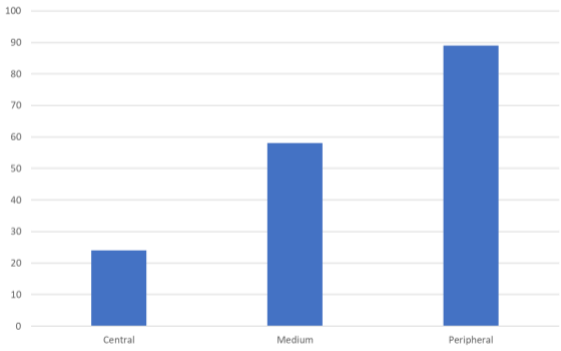
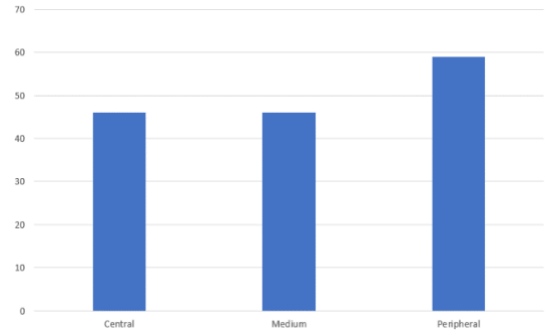


Table 16: Climate change references (SA)



Furthermore, *The Standard* and *Vanguard* (Nigeria) as well as *The New York Times* construct the issue of climate change differently in their articles. The selected articles focus mostly on climate change as their main issue and less articles refer to climate change only as a side note. The two German and the two British websites predominantly report on climate change in connection to other issues. The difference between the selected articles from the two countries is that *Die Welt* and *Die Süddeutsche Zeitung* include more articles with climate change as the primary focus compared to *The Independent* and *The Times*.

The content analysis shows that there are different qualities of articles dealing with climate change. While this is a common journalistic practice, the interviews with journalists provided further information on this issue and connected it to the organisation of newsrooms. Journalists from the *Daily Guide* (Ghana), *Daily Nation* and *The Standard* (Kenya) explained that there is no dedicated environment desk that focuses solely on climate or the environment (Brown-Acquah, Kahongeh, Otieno). Issues falling into this domain are mostly covered either by the energy or the business desk. This could explain why, especially in Ghana and Kenya, climate change is mostly included in articles as a side note. The structure of other newsrooms is referred to in the next paragraphs.

The interviews provide specific insights into the structure of the different media companies which help to further understand this issue. At the *Daily Nation* in Kenya there is "a science desk within the newsroom under which climate change is one of the areas that we are constantly focusing on". Subsequently, the interviewee emphasized that "we would have climate change stories, yes, but they were very sporadic, it wasn't something that was being done on a consistent basis" (Int. KE 1). The interviewee added: "So, outside the organization it has improved because rather than being treated as a small element, this is now one of the big areas where so much emphasis has been placed. […] In summary, we should have focused desks focusing on changing environment reporting." (Int. KE 1) Thus, climate change is covered by the science desk, however, according to the journalist, media companies are starting to put more emphasis on this issue.

At the same time, Lynet Otieno, a Kenyan journalist working at *The Standard*, spoke about structural issues with regard to climate change coverage and the level of emphasis put on this issue in the reporting:

> I just wish that there was more understanding for the fact that journalists need training on this issue. They need to be at climate change and environment desks, independent ones, standalone desks that focus on climate change and the environment. And then they can relate to other desks. […] So, if you don't have independent desks that focus on climate change, climate change reporting is still going to fall under health and science desks where health stories will be given more attention, because it's oftentimes health stories before other stories. […] In summary, we should have dedicated desks focusing on environment reporting.

Similarly, Ugochi Anyaka-Oluigbo, a Nigerian environmental journalist, remarked that environmental issues are still not getting enough attention: "I don't think the environmental issues are still getting enough attention. I think they pay attention to business stories, there's a sports desk. So, I think till today, it [climate coverage] is pretty much underfinanced and not just in Nigeria." Kingsley Jeremiah, a Nigerian journalist working for *The Guardian*, added to this and explained the structure in their newsroom:

> The Guardian has a property, environment and climate change desk. They also have an energy desk. The people on the property, environment and climate change basically focus more on climate change issue than the energy sector and other sectors report climate change issue as part of the impacts or activities in their sector.

This shows that there are individual perspectives on this issue. Anyaka-Oluigbo brought up a lack in climate change reporting, while Jeremiah explained how climate change is covered at *The Guardian* at a dedicated desk.

While individual journalists from Kenya and Nigeria criticised not having a dedicated climate or environment desk at their respective media company, Catherine Early, an

environmental journalist from the UK, looked back at how climate desks were introduced in British newsrooms:

> The Paris Agreement has really been the catalyst to most of it. It wasn't an overnight thing, but I think that's probably the changing point. In the last two or three years, you've seen a lot more climate desks and climate journalists being specifically employed by mainstream newspapers, a lot of them had an environment journalist for years […]. And so now to have journalists who are specifically employed just to do climate change is quite a change. But I'd really say that's only happened in the last two or three years, and suddenly everyone's doing it all at the same time.

Early shared her hope for an integration of the climate desk into other parts of the newsroom. This describes a next step in expanding climate change coverage: "I would hope that would change a bit and there'd be more integration, so it wasn't just, here's the climate change desk and those are the specialists, but that everybody in the news desk knows at least something about it and they'll bring that into their reporting."

The British journalist pointed out that having a climate desk does not mark the final stage. Instead, the climate desk and its topics need to be re-integrated into the newsroom to meet the requirements of a cross-cutting issue. Climate change coverage should not become a silo, but an issue that finds a place in every vertical and every section of the newsroom, be it business, politics, sports, or culture (see e.g., Int. US 1, Early, Int. GE 2, Int. UK 3). A German journalist at the *Süddeutsche Zeitung* emphasised how important he thinks it is to have content meetings across different beats and departments when it comes to climate change coverage (Int. GE 2). In this context, he also speaks of "grenzüberschreitenden Recherchen" (Int. GE 2) which translates to a form of journalistic investigation that stretches over different beats.

A journalist from the US summarised this step-by-step introduction of a dedicated climate desk and an integration into the newsroom:

> It's almost like an evolutionary stage where you go from just reporting on the science of climate change to reporting some sort of doom and gloom stuff about the impacts and how bad it will get and so on, and then you get to the solution stage. And I think that there's a lot of outlets in the US that are in the science reporting stage or in the doom and gloom stage and haven't gotten to the solution stage yet. And there are a few outlets like The Times and The Guardian, so really major news outlets, that are covering climate change from different angles, but they are sort of outliers. (Int. US 1)

Initially, this section introduced findings from the content analysis that showed how climate change related issues range from being the main issue to being included merely as a side note in the different articles. The Namibian, the Ghanaian and the Kenyan websites place little emphasis on climate change in their articles; the two German and the two British websites predominantly report on climate change in connection to other issues. While these findings

reveal no uncommon journalistic practices, the interviews were then used to understand how the newsroom structures may contribute to covering climate change as a central or a secondary issue. While not all interviewees touched on this issue, the Ghanaian and the Kenyan participants revealed that because there is not always a dedicated climate or environment desk, the topic oftentimes is only included as a side note in connection to other issues. In contrast to that, *Mail & Guardian*, *The Times*, *The Independent*, *Süddeutsche Zeitung* as well as *The New York Times* already have dedicated climate desks within their newsrooms. Before, "climate coverage happened mostly on science desks, and so it was all just here as the science of climate change" (Int. US 1), concluded an American journalist.

6.7. Selecting what makes the news: The role of news values

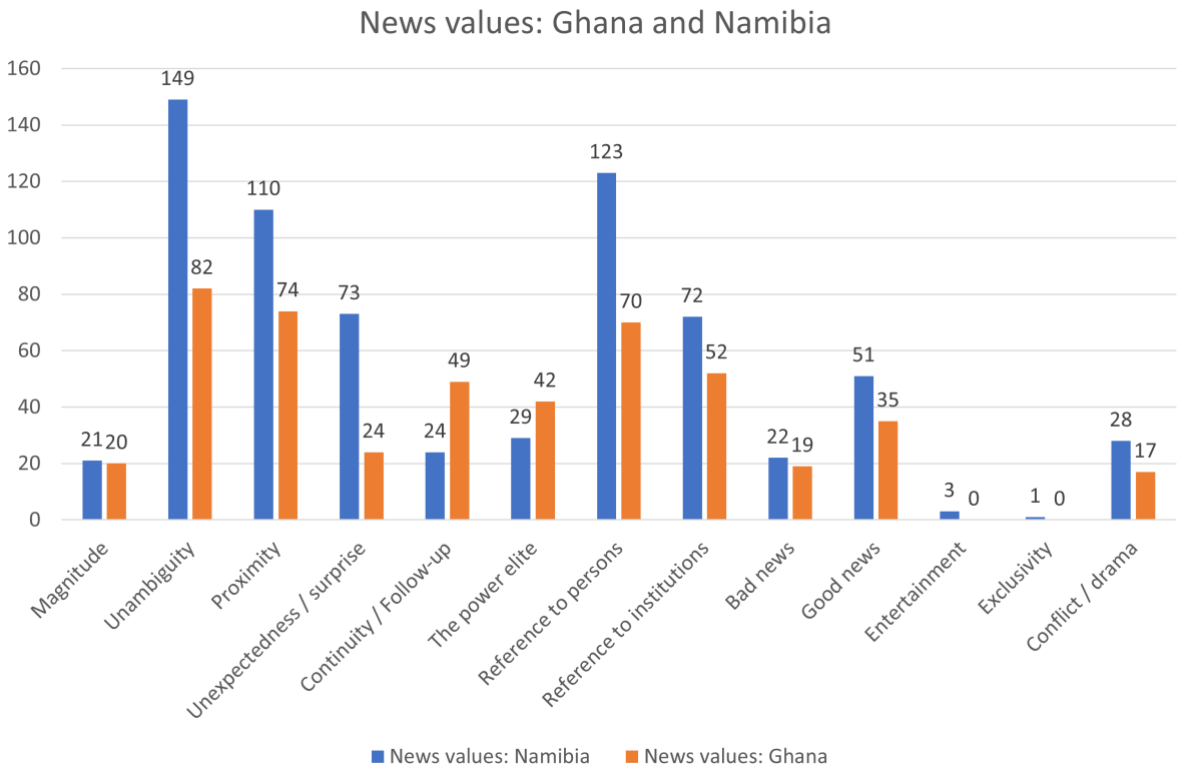
This section aims to answer research question 1b: *What are the most prominent news values?* Before looking at the results more closely, the way in which news values are approached in the analysis needs to be clarified. Section 4.1. of the theory chapter explained how news values can be approached from two different directions: Either they are consciously implemented in the reporting by journalists (see e.g., Staab 1990, Kepplinger & Ehmig 2006, Kepplinger 1998) or they are perceived as characteristics of events. This means that if news values are perceived as characteristics of certain events, they can be analysed using the method of content analysis. However, if news values are understood as selection criteria, then interviews with journalists are necessary to obtain those insights (Eilders 2016). Thus, the quantitative content analysis is only one part of the investigation of news values in climate change reporting and is complemented with the results from the interviews.

All 15 websites show similarities in their distribution of news values. The two news values identified in most articles are "unambiguity" and "reference to persons". The former is utilised especially in articles published on the Namibian and the Ghanaian websites, and this means that they pay special attention to connecting their climate change coverage to concrete events. The other websites focus mostly on integrating references to different persons and thereby personalising the reporting on climate change. Secondly, the news value of "proximity" was identified in several articles. This means that the journalists not only reference persons to personalise the narrative, but they also report on events that are perceived as close to their readers in terms of location.

Furthermore, Namibia and Ghana are the only two countries that have a higher share of good news stories compared to stories with bad news. All other websites seem to include more bad news in their articles. Good news, for example, refer to new technical innovations that could

be used to adapt to the changing climatic conditions or ways in which communities and countries are trying to limit their greenhouse gas emissions. Bad news, on the other hand, involve reports on extreme weather events, research reports with daunting predictions about the future or individual stories about people who already feel the impacts of climate change.

Table 17: News values Ghana and Namibia



The insights into the distribution of different news values in the quantitative content analysis can be used to understand the characteristics of certain events that are important to create newsworthy stories. This, however, presents only one way of looking at this issue. Subsequentially, the interviews are used to further investigate the relation between the way in which climate change is perceived and then reported by journalists, and the role certain news values play in this process.

The first common theme in the interviews was that journalists aim to report on stories with a connection to real people. A Kenyan journalist working at the *Daily Nation* was particularly passionate about connecting abstract scientific issues to stories about real events and real people because "then you're able to report that story from the point of view, such that you're telling interesting stories, relatable stories, because then these are stories of real events by real people" (Int. KE 1). The interviewee elaborates more on why he thinks it is particularly important to relate climate change to real life stories:

> By telling these stories that every Kenyan or every member of the audience can relate to, it becomes easier to tell that story. So, I think the best way to have stories on the impacts of climate change is to tell real stories, human interest stories and stories that everyone can attest to. Because when you tell people that, for instance, temperatures in a given area have gone over this number in a specific period of time, sometimes it's very difficult to perceive that. But when you tell them that say agricultural needs have gone down because we now have more erratic rains, we have reduced rainfall and that we are no longer able to produce as much as before, then it becomes something that someone can visualize and indeed agree that climate change is real. So, I think I tried to employ real stories by real people who have experienced this phenomenon.
> (Int. KE 1)

In this example, the news values of "unambiguity" and "reference to persons" are consciously implemented in the reporting by the journalist and not necessarily characteristics of the event itself. The journalist combines concrete, unambiguous stories with the more abstract issue of climate change to create a connection to people's everyday lives (Int. KE 1).

Similar to telling "real stories by real people" (Int. KE 1), a German journalist (Int. GE 2) working at the *Süddeutsche Zeitung* emphasised the importance of showing that climate change is not something that is happening far away, but something that is also happening in Germany (original quote: "Wir müssen da irgendwie deutlich machen, dass es halt kein Thema ist, was super fern von uns ist, sondern auch hier stattfindet." English translation: We need to show that it is an issue that is not happening far away from us but that we also experience right here.). The journalist continued by saying that instead of only reporting about climate change in the context of an extreme weather event somewhere in the Global South, they introduced a new column called "Mein Klimawandel" (English translation: My climate change). There, they tell stories of people who the readers can relate to more easily in terms of location and everyday life (Int. GE 2).

The concept of connecting climate change reporting to a specific area or location brings up another point that has already become obvious in the content analysis. The news value of "proximity" appears to be one of the most commonly applied news values when it comes to reporting on climate change. The German journalist confirmed this finding from the content analysis with the above statement (Int. GE 2). In the interviews, several other journalists referred to the struggle of balancing the global nature of climate change and the local impacts in their reporting. Teneal Koorts, a Namibian journalist, referred to the importance of communicating the global nature of the issue: "I think it's important to see the global perspective and […] that it affects every single person on this planet, there is no one that is not affected."

However, combining global with local aspects presents various challenges. Chapter 8 focuses more on those challenges, but some aspects are presented here in connection to "proximity" as an important news value. In this context, two aspects were brought up in the

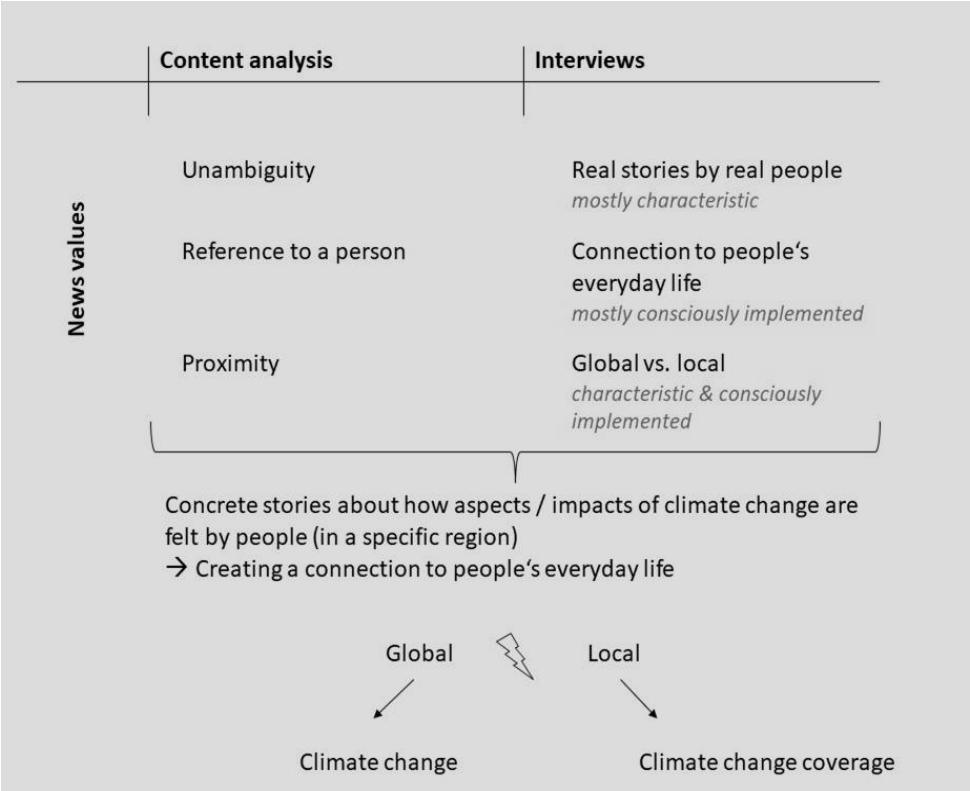
interviews. First, Leonie Joubert, an environmental journalist from South Africa, emphasised the considerable level of content knowledge that a journalist needs in order to make the connection between global and local:

> Climate change requires a level of content knowledge that is quite considerable. There is no handbook you can read to understand climate. For example, if you write a story on the importance of grasslands and savannahs for carbon sequestration in the African context, you need a very specific understanding of biological functions in the African context, that's very different to what cars are causing in terms of pollution in the Global North. Every single aspect requires specialist knowledge.

Second, due to limited resources within the newsroom, there are specific priorities when covering issues related to climate change. Here, the news value of "proximity" is important because journalists decide what to focus on depending on a perceived proximity and a relevance for the reader. Catherine Early (UK) explained: "There have been so many kinds of simultaneous disasters going on at the same time in different places. The bigger ones do get reported although probably this still is quite Western-centric like Australia and the US, they'll be more about, for example, the wildfires there." Early gave another example and suggested that a wildfire in the US will be more likely to get coverage than "a wildfire in a part of Russia that no one here has heard of" because the former "is more familiar to people".

Referring back to the theory chapter and the opening paragraph of this section, news values are either consciously implemented in the reporting by journalists or they are perceived as characteristics of events (see e.g., Staab 1990, Kepplinger & Ehmig 2006, Kepplinger 1998). The content analysis revealed which news values are perceived as characteristics of certain events, while the interviews provided insights about the journalistic selection criteria beyond the article itself (Eilders 2016). The following graph illustrates the findings generated through the combination of both methods:

Figure 3: News values in content analysis and interviews



The graph illustrates what has been analysed in this chapter in a simpler, more concentrated manner. It lists the top three news values that are used in most articles according to the content analysis and the top three news values that the journalists named in the interviews. The graph shows that the news values from the content analysis match the characteristics that the journalists referred to in the interviews. When reporting on climate change, the news values of "unambiguity", "reference to a person" and "proximity" play a central role. The journalists phrased these characteristics slightly differently and referred to real stories by real people, connection to people's everyday life and a differentiation between global and local. However, while they did not use the specific terms established by Galtung and Ruge (1965) and subsequently also Harcup and O'Neill (2001, 2017), these descriptions still transfer to the respective news values.

Interrogating the statements made by the journalists more closely, each news value can either be described as mostly characteristic to a specific story or as consciously implemented by the journalist to create a more interesting story for the reader. While it is not possible to create a clear distinction for each case, the journalists gave some insights into the process. Accordingly, they choose stories about real people, which then becomes a feature of the story. A connection to people's everyday life, however, is something that journalists often consciously implement to create a more interesting and relevant story to the reader. Lastly, when reporting

on climate change as a national not an international issue, it is a conscious decision. However, the story itself also needs specific characteristics to make the news in the first place.

To sum up and to answer research question 1b, the quantitative content analysis together with the findings from the interviews revealed that journalists mostly try to create concrete, unambiguous news stories with a reference to a person and a concrete connection to the readers' everyday lives. As a result of these connections, climate change coverage is mostly focused upon a region that is perceived as close to the respective audience. Thus, climate change reporting has a strong national or sometimes even local focus while climate change itself remains a global issue.

And while these storytelling techniques are nothing new when it comes to news value analysis, it is still interesting to see that climate change conforms with this news telling convention of relating abstract information to concrete events and stories. Thus, climate change reporting in different countries and even continents is consistent with other news value analyses. And even if these findings may seem quite straight forward at first glance, it is interesting to note that when it comes to climate change reporting the approach of telling concrete stories with a connection to the readers' everyday lives is a practice used in all selected countries. The news stories themselves, however, are quite narrowly focused on national issues contradicting the global nature of the issue of climate change itself.

7. Climate change and international relation framing

7.1. Climate change frames

This chapter focuses on the framing of climate change with regard to national and international issues (RQ 2). For this, each mention of climate change in the selected articles has been categorised according to the way in which climate change is framed in this section. Climate change has gradually evolved from being an exclusively scientific concept to a concept that is used in a variety of contexts and thus, is no longer understood in the same way by everyone. Instead, different characteristics are attributed by different interest groups and thereby the article becomes more nuanced. Despite the fact that climate change is still a scientific concept, the issue of climate change has become open to interpretation; and the media frame it in different ways. Frames can provide indications on how to interpret an event and give meaning to objects within discourse (Boykoff 2011). For example, climate change can be discussed in an economic, political or social context. Frames always entail some kind of selectivity where aspects of a certain topic are highlighted, while others are omitted (Gamson & Modigliani 1989). This section follows the underlying theoretical assumption made by Agwu and Amu (2013) that understanding how climate change is framed in journalistic coverage influences how the general public and policy makers view adaption and mitigation strategies related to climate change.

The coding of the respective frames was done manually by the researcher and while the method is predominantly quantitative, the approach cannot clearly be separated from a text-based, interpretative approach. To guarantee for a replicable and systematic methodological procedure, the frames that are used in this content analysis were selected by combining a deductive with an inductive approach (more details in section 5.3.2. and in the codebook in appendix 1). In this way, the frames have a theoretical foundation based on previous studies (see e.g., Agwu & Amu 2013, Broadbent, Sonnett & Zhengyi 2016) and have a practical significance to this specific project, tested during the pilot study.

This first section functions as an introduction to the following parts of the frame analysis that explain and analyse each relevant frame in more detail. Each section includes a bar chart to show the frequency of use for each frame and country: The political frame is used the most frequently in Nigeria, the UK, the US, and Germany. In Ghana, climate change is also oftentimes reported in connection to political issues, but the most frequently used frame is the economic consequence frame. Kenya frames climate change mostly as an environmental issue. The Namibian coverage shows a similar tendency; however, the articles also refer to mitigation

strategies quite frequently when reporting on climate change. The frames 'activism' and 'conflict' appear to be the most irrelevant frames in the climate change coverage of almost all websites. The conflict frame is used slightly more frequently only in the case of the Nigerian websites, similar to the activism frame in Germany.

7.1.1. Political frame

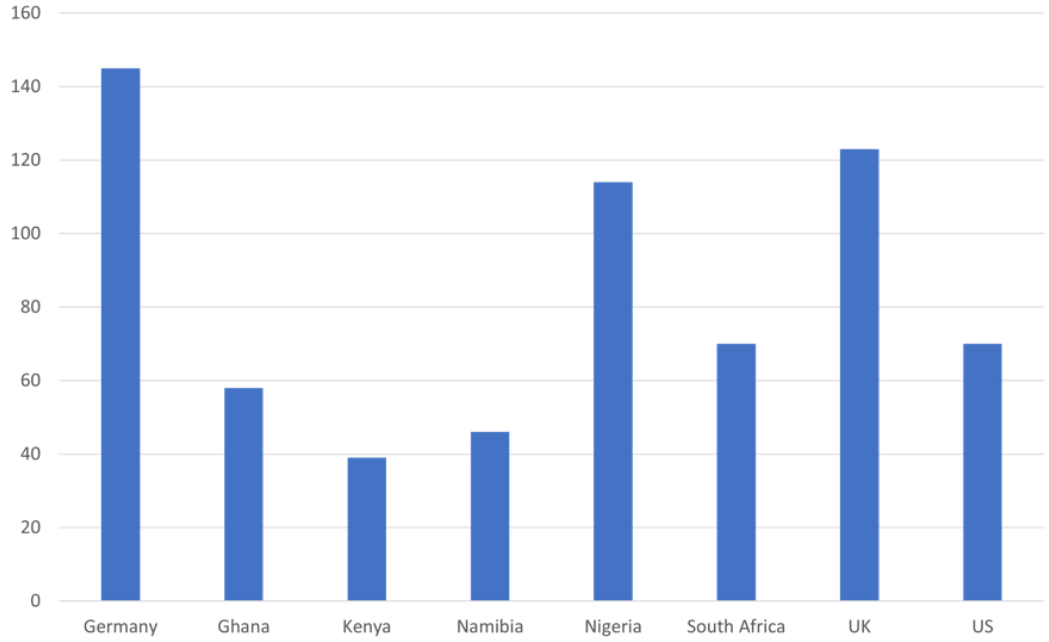
The political framing of climate change has been analysed as part of different studies in the field of science communication (see e.g., Boykoff 2011, Schäfer, Ivanova & Schmidt 2013, Carvalho & Burgess 2005). Political frames in particular refer to government, negotiations, politicians and the like. In addition to these topics, political frames can refer to global, subcontinental, national or local issues due to the multiple dimensions of climate change and depending on the responses and political responsibilities (Gupta, van der Leeuw & de Moel 2007). Carvalho and Burgess (2005) state:

> Coverage of climate change has been strongly linked to the political agenda on this issue […] the media build particular images of scientific knowledge and uncertainty on climate change, and emphasize or de-emphasize forecasts of impacts, in order to sustain their political preferences regarding the regulatory role of the state, individual freedom, and the general economic and social status quo.
> (1467)

While the general message that climate change coverage is strongly linked to politics still holds true, the level to which scientific knowledge or uncertainty is instrumentalised as part of political frames has declined since the publication of the study in 2005.

Turning attention to this study, the results from the quantitative content analysis show that climate change is mostly framed either as a political issue or as an environmental issue. The political frame, specifically, emphasises climate policy strategies, political debates and issues relating to politicians and the government including their input to the debate about climate change. The frame is used the most on the two German websites, followed closely by the UK and Nigeria:

Table 18: Political frame



The Nigerian, the German, and the British websites as well as *The New York Times* tend to frame climate change mostly as a political issue. This means that climate change coverage refers to political debates and thereby is presented as something that is mostly dealt with in a political context. The frames are used to highlight certain aspects of a political situation to promote a particular interpretation (Entman 1993). A political framing of climate change often attributes agency and the capacity of acting to the government or individual politicians.

In a next step, the findings from the interviews are connected to the results from the content analysis. The content analysis revealed that especially the Nigerian, the German and the British websites, as well as *The New York Times*, frame climate change as a political issue. Leonie Joubert (South Africa) made a similar point by saying that "for a long-time climate was regarded or treated as a political story where you have two sides of an argument. We are starting to see a shift in that regard, but again, it has been a long frustrating process".

Moving beyond the frequency of use of the political frame, several interviewees brought up similar points. The journalists from Ghana and Kenya pointed out that they try to report on climate change mostly as a human issue instead of a political one. While this distinction may seem difficult to make since politics is also closely connected to the people, the content analysis with support from the interviews revealed a difference in the journalistic approach: Climate change can be framed either as a solely political issue in connection to e.g., politicians, new policies, or negotiations, or as an issue which is primarily linked to consequences for people, e.g., due to an extreme weather event that is attributed to global warming.

Frederick Duodu Takyi said that in Ghana "you'll get the political actors to say something if the issue will affect their political fortunes, but you have to know at what point to use that context. To make the impact it is best to humanise the story and combine the two [political and personal context]". A Kenyan journalist at the *Daily Nation* also criticised the focus on politics when it comes to climate change reporting: "You find that there is a lot of politics when it comes to climate change […]. I think politics still gets the most attention, which is unfortunate because as much as politics is important, we cannot continue to treat politics as the only thing." (Int. KE 1) The journalist added: "Talking about politics in a country like Kenya, that is very politically active, you find that political stories constitute the largest percentage in the media." (Int. KE 1) Looking into the future, the journalist hopes that the Kenyan "media houses will try to look at it slightly differently and not focus too much on politics and then try to save a situation that we can see now before it is too late" (Int. KE 1). Additionally, the journalist emphasised how important it is to diversify the reporting because of the possible consequences. He would like to "try to move away from reporting on politics and focus our energy and time on other issues, as well, because ultimately we are the ones who will suffer more than before, while other countries started the suffering and changing the climate" (Int. KE 1). This quote clearly highlights how the journalist considers international structures in his reporting on climate change. How international dynamics come into play in climate change coverage will be analysed in more detail in section 8.2.

Lynet Otieno, a Kenyan journalist working at *The Standard*, explained that climate change in her view is mostly reported as a human issue: "It is not reported as a political issue. It is reported as a human issue and a lot of the times you'll find that comments sought by reporters are from non-entities." On that note, Otieno continued to point out that it can distort the reader's perception of climate change: "Even as a politician you understand that this is a problem, so it's not reported as a political issue, but when they seek comments for unique voices in your stories, then you find the wrong voices being brought into these stories and very crucial ones are oftentimes left out as experts."

Similarly, Leonie Joubert (South Africa) referred to the distinction of reporting climate change as a political or a human story by saying that "for a long-time climate was treated as a political story [...]. I think we're in a duty globally and in South Africa around not informing the public about the most dire threat to our species and our civilization". Joubert continued to say that in her view the main South African media already grasp the complexity of the topic and report on climate change from different angles: "I think the main titles will cover it across the spectrum. They'll write a political story, they'll treat it as an economic story, a health story,

a human rights story, a social justice story. So, they understand that it's bigger than just the environment." Here, the journalist brought up the issue of climate change being reported as a mostly political story for some time. Joubert now sees a shift and a diversification in the reporting by South African media.

Catherine Early, an environmental journalist from the UK, said that "it is reported on more than just when there is some UK politics around it". Here, the journalist clearly differentiates between reporting on climate change solely in relation to UK politics as opposed to reporting on climate change also in connection to other issues. Early also pointed out that the topic is oftentimes still considered as a "silo", but you "do get some crossover". For example, after COP26 the British prime minister held a press conference where "most journalists who were invited were political correspondents, so almost no environment correspondents". This example supports Early's perception that in some cases climate change is perceived as a silo which is being dealt with separately from other (political) debates. However, the journalist did not elaborate on whether or not this example was an isolated case. Isabelle Gerretsen, an environmental journalist working in the UK, observed a political focus, as well, and added:

> I think there is definitely a political focus, but there are scientific reports, as well. I think what was encouraging to see was when all these extreme events happened over the summer [2021] that there's no question now about that link with climate change, and I think that's very clearly reported and there's no kind of vague language around that and that already is a step forward.

John Schwartz (US) brought up another point with regard to a political framing of climate change. Schwartz pointed out that journalistic coverage of climate change depends greatly on the political climate of a country. This becomes apparent with regard to past political shifts in the US. Here, Schwartz referred to the year 2016 when Donald Trump was elected President of the United States:

> But the problem is that in 2016 as we got closer to the election our team was saying, well, alright so Hillary Clinton is going to get elected, and we can stop having to write about whether climate change is happening or not and really move on to the next step in reporting about solutions and not having to prove it as much. And of course, you then get a President [Donald Trump] who says all the things that we thought we didn't have to say anymore.

On a similar note, a German journalist (Int. GE 2) who works at the *Süddeutsche Zeitung* observed that climate change reporting can be influenced by media ideologies and political affiliations of a specific media company (original quote: "Das Thema beginnt mehr auch im Bereich Wirtschaft und Politik stattzufinden. Bei den konkurrierenden Blättern würde ich sagen, das ist teilweise halt etwas ideologisch gefärbt würde ich jetzt mal sagen." English

translation: The issue is starting to be integrated in the business and politics sections more frequently. Articles by competing newspapers tend to have an ideological touch in their reporting.). However, none of the three German journalists touched upon the possible opposition of framing climate change as a political versus a human issue. All three interviewees observed that climate change has become a cross-cutting issue (original quote: "Queerschnittsthema"), but they did not put any specific emphasis on the above opposition. Climate change is not treated as a discrete subject, but as an "integral part of wider political and economic decision-making" (Newman 2023).

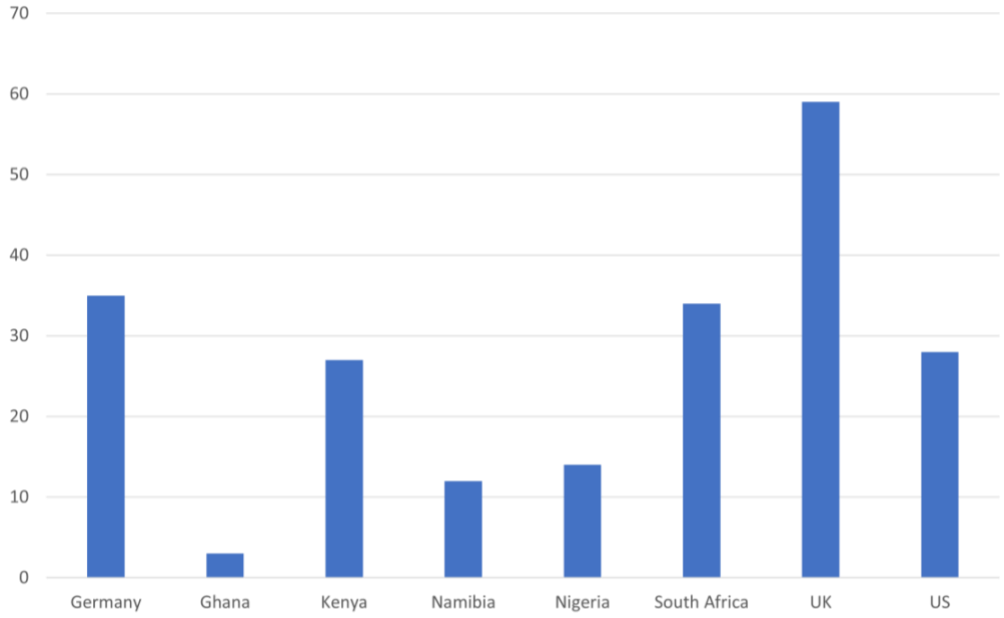
This section showed that, according to the results from the quantitative content analysis, climate change is mostly framed either as a political issue or as an environmental issue. In the articles, political frames refer to climate policy strategies, political debates and issues relating to politicians and the government including their input to the debate about climate change. Apart from the frequency of use of the political frame, several interviewees made a distinction between framing climate change as a political issue as opposed to a "human issue" (Otieno, Kenya). The journalists from Ghana and Kenya explicitly referred to the impact climate change has on the people, rather than just as a political issue. Leonie Joubert (South Africa) observed a shift to a more nuanced coverage with other frames that are also included in the reporting. The next sections refer to other relevant frames.

7.1.2. Scientific frame

Initially, climate change was perceived as a scientific issue. When the concept became increasingly relevant in public discourse, the scientific focus began to soften, and the discussion broadened to include other topics and issues relating to climate change. Climate change communication moved beyond mere science and policy issues and, since then, "has opened up the nature of public discourse" (Moser 2010: 32). In this context, Pan, Opgenhaffen and van Grop (2019) refer to climate change as the "most prominent and politicized scientific issues" (520).

To understand the role science plays in the selected articles, the following graph shows the number of times climate change was framed in a scientific context in the selected articles:

Table 19: Scientific frame



Looking at the numbers, two trends can be identified that separate the countries into two groups. According to the numbers, one group including Ghana, Kenya, Namibia, and Nigeria seems to put only a small emphasis on the scientific aspects of climate change. For these media companies, the scientific frame ranges somewhere in the lower third compared to the other frames. Only the two German and the two British websites, plus *The New York Times,* put more emphasis on the scientific aspects: The scientific frame ranges in the upper third. The scientific frames used on the British websites include references to warnings by scientists (see e.g., Stewart 2021: "'This is a wake-up call': Canada heatwave a sign of uncertain years to come, scientists warn", *The Independent*), to research reports (see e.g., Gosden 2021: "In a report last year they suggested Britain may need to capture 105 million tonnes of carbon dioxide a year by 2050 — equivalent to more than a fifth of Britain's annual greenhouse gas emissions pre-pandemic.", *The Times*) and other findings about the climate and the environment (see e.g., Batchelor 2021: "Climate change pushed dinosaurs into decline 10 million years before asteroid hit Earth, study says", *The Independent*).

The interviews provide more nuanced insights into the way in which journalists deal with the scientific aspects of this issue as well as how they approach covering new scientific reports. Yet, the topic of reporting climate science was rarely touched upon in the interviews compared to, for example, framing climate change as a political issue (see section 7.1.1.). Ugochi Anyaka-Oluigbo (Nigeria) brought up the issue:

> I've not always reported on climate change as very scientific because then nobody is going to understand what you're saying. I portray it as a human reality. You can see it. You can feel it. That's what I do. I look at the people who are affected, not the scientist, or at what science is saying. Of course, I will have to make that connection, but the bulk of the story is on those who have been affected, their resources. That's what matters to me.

Anyaka-Oluigbo continues by saying that it is crucial for a journalist to connect scientific findings with the lived reality of the people. According to the journalist, this includes breaking it down and localizing it "so that people can understand what you're saying and make sense of, you know the whole jargon around climate change and the science". Similarly, a German journalist (Int. GE 2) who works for the *Süddeutsche Zeitung* spoke about localizing scientific content to create a concrete connection to people's everyday life (original quote: "Also ich glaube, dass das immer wichtiger wird, so Veränderungen auch runterzubrechen auf das Lokale und was heißt das für jeden Einzelnen." English translation: I think it is starting to become more important to show what these changes mean on a local level and for each individual.).

On a similar note, Leonie Joubert (South Africa) also explained that when it comes to reporting science it needs more than scientific facts. Instead, she recommended "to get to the person through their heart, not through their head". This takes up the point made by Anyaka-Oluigbo about connecting scientific findings to the lived reality of the people. Joubert went one step further and talked about using "evocative storytelling methods" in this context. She elaborated more on this point:

> We often talk about using the tools that we have available to us for fiction writing and using those in non-fiction, but where everything you tell is true. So, finding the character, describing the scene, showing the energy of the scene as it unfolds, and having dialogue, having plots, and so on. This is something that one can do very effectively in non-fiction writing.

While this is an ideal scenario according to Joubert, the journalist concluded this thought by saying that this is something that "takes time and needs space". In part three of the analysis, the issue of limited resources and the challenge it presents for climate change reporting will be referred to in more detail (see section 8.1.3.).

A Kenyan journalist working at the *Daily Nation* pointed out that there is "a science desk within the newsroom under which climate change is one of the areas that we are constantly focusing on" (Int. KE 1). Furthermore, Lynet Otieno, a Kenyan journalist working at *The Standard*, touched upon the way in which UN research reports on climate change are covered by national media – in her view:

> Stories that are related to the environment are mostly UN reports being brought into the newsroom, which are not even analysed. So, you always just have reports coming from the UN and the articles are like, this report said this, it further added this, it said this and this. But then what do we know as journalists?

In the interview, Otieno elaborated more on this and said that she would like to see journalists engage more critically with UN reports instead of simply copying certain passages. The role of a journalist is to translate the findings from scientific reports for the readers and put them into a context that the readers can relate to (Otieno, Kenya). This impression can only partly be supported by the content analysis as this claim is rather unspecific and exceeds the scope of this study. Looking more closely into the articles by *Daily Nation* and *The Standard*, there are articles with varying levels of depth when it comes to covering UN reports. Articles on the *Daily Nation* website, for example, refer to UN reports in the following way:

> The United Nations says the world needs a drop of 7.6 per cent annually until 2030.
> (Wanyonyi 2020)

> The Food and Agriculture Organization of the United Nations estimates that there are 1.2 billion youth in the world, a massive 88 per cent are in developing countries and 75 million are unemployed.
> (Opinya 2020)

> According to the United Nations Food and Agriculture Organization (FAO), land-use conversion and soil cultivation are responsible for about a third of greenhouse gas emissions worldwide. The UN agency says agricultural soils are among the planet's largest carbon reservoirs and with a potential to store even more.
> (Muchui 2019)

The three examples show that it is not possible to deny or support the impression of Lynet Otieno about the way in which Kenyan media approach research reports published by the UN. However, it underlines the role journalists have when covering issues with a scientific background and opens up interesting questions for future studies and investigation.

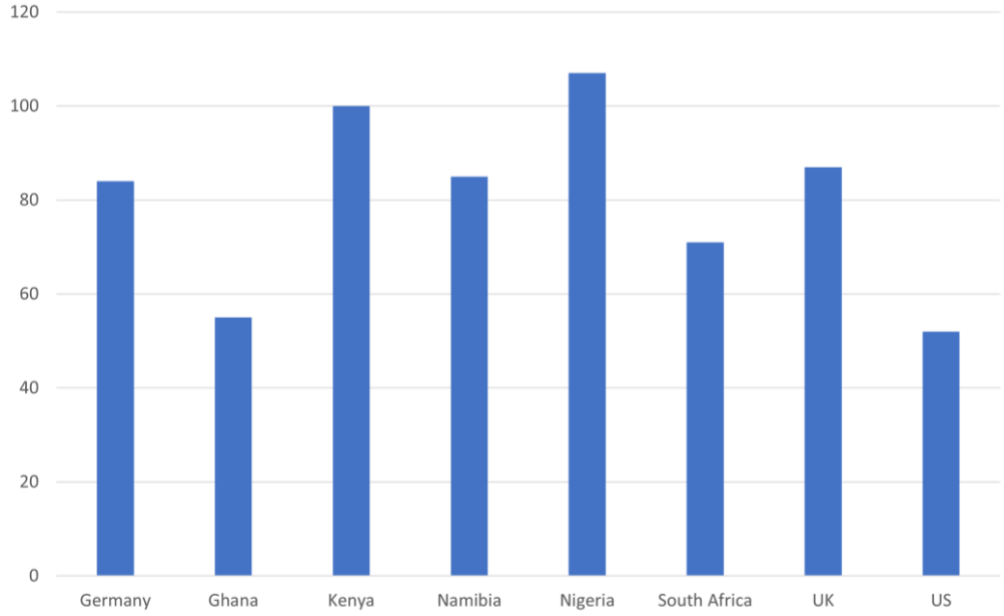
The content analysis as well as the interviews both suggest that journalists still approach the reporting of climate science with caution rather than ease. Initially, media outlets were largely influenced by the "'balancing' norm" (Moser 2010: 32) and presented climate change discourse "as a 'battle' over unproven science between two sides" (ibid.). While the effect of creating a 'false balance' in the media started to subside in the mid-2000s after scientific consensus had become clearer, the communication of the complex causes and fatal impacts seems to remain challenging at least to some extent (ibid.). For example, only in 2014, the *BBC Trust* stated the corporation has "a duty to reflect the weight of scientific agreement but it should also reflect the existence of critical views appropriately" (BBC 2017). In the third part of the

analysis (see chapter 8), this issue along with further challenges surrounding climate change coverage will be focused on with reference to a perceived lack of training for journalists.

7.1.3. Environmental frame

The content analysis revealed that almost all media outlets frequently install the environmental frames in their climate change coverage. For most countries, this frame ranges among the top three frames. The bar chart below illustrates the frequency of use of the environmental frame:

Table 20: Environmental frame



The two Kenyan websites have published several articles which employ the environmental frame. The analysis showed that *The Standard* and the *Daily Nation* (Kenya) frame climate change in their articles mostly as an environmental issue, for example, in connection to extreme weather events ("Flooding affects 400,000 people in Somalia: UN" (Xinhua 2021)), issues with natural resources ("Water a crucial agent in fighting climate change" (Musinguzi 2020)) or other topics relating to the environment ("We cannot afford to lose biodiversity that God gave us with love" (Dolan 2019)).

One Kenyan journalist writing for the *Daily Nation* emphasised that the environmental impacts of climate change contributed to a clearer understanding of the issue: "For a long time, many Kenyans didn't realize that climate change was real until the yields started going down […] and crops that were doing better in certain coastal regions are no longer viable." (Int. KE 1) However, while impacts of climate change like crop failure are reported in Kenyan media,

Lynet Otieno (Kenya) criticised the way in which they are covered. Specifically, when environmental issues are picked up by Kenyan media, Otieno said that the reporting is lacking in clear mentions of climate change as the possible cause for these issues and catastrophes:

> I realize there's very little [climate coverage] and at the same time matters of the environment are being reported without emphasising that this is a climate change issue. For instance, you have cases of landslides and people have died, so when it is reported in the newsroom, it's reported as an event or as a catastrophe that cost lives, but nobody wants to go deeper into what caused it or how this can be prevented. So yes, climate change issues are discussed in the newsroom, we report the catastrophes where flooding happens, and people die. However, the issue is that we just report that people have died due to flooding, but nobody wants to give it a closer look or ask anything beyond that. It's just reported as news, and when people do features, it's also just given another feature, like this person is going through this, but nobody wants to relate it to the effects of climate change.

There are, however, examples within the set of articles for the quantitative content analysis that contradict this impression. There are articles that connect issues such as crop failure to climate change. For example, an article by Njoroge Kinuthia (2019) for *The Standard* titled "Heatwave should melt hearts of climate change sceptics" relates crop failure directly to climate change:

> At the moment, Kenya is staring at a major food crisis due to crop failure occasioned by a dry spell earlier in the year. [...] Scientists have provided evidence that these adverse weather conditions are a product of human-induced climate change. The need to reduce greenhouse emissions, and to mitigate the impact of climate change has never been more urgent.

This article is no isolated case. Thus, the assumption suggests itself that in Kenyan media, climate coverage is evolving, but it simply needs more time until this shift becomes more obvious. Lynet Otieno, who was referenced above, is an experienced journalist with a passion for climate coverage. It may take some time for people within the industry to see the subtle changes apart from their own work.

Similar to Otieno (Kenya), Ugochi Anyaka-Oluigbo (Nigeria) pointed out a lack of clear connections between extreme weather events and climate change: "[…] a lot of times you see that we just report the disaster that is happening and oftentimes we don't make that connection". The root cause for this issue lies deeper because "it takes a reporter who understands the issue to make the connection between climate change and these other issues". This is also the case in South Africa because "if you write a story on the importance of grasslands and savannahs for carbon sequestration in the African context" (Joubert, South Africa), it requires "a very specific understanding of biological functions in the African context, that's very different to what cars are causing in terms of pollution in the Global North, like every single sort of aspect requires specialist knowledge" (ibid.).

Adding another layer to this issue, Sharon Willis Brown-Acquah, a freelance journalist from Ghana, stated that there may be reports of extreme weather events, but the long-term effects of climate change are barely included in the coverage. Instead, these events are often reported as isolated instances. According to Willis Brown-Acquah:

> That is also another point to look at because they can't be late with it because internationally, we hear reports of hurricanes, massive flooding, we can relate with things over here. We don't really understand the effect it's also having on us. But that's the thing about climate change, it doesn't normally stare us in the face. It's a gradual process, it happens gradually, by the time we know, and it is time to realize, it has already caused lots of lessons and harm. And I'm a bit emotional about this because journalism here in Ghana isn't really respected this way.

Frederick Duodu Takyi (Ghana) gives another example where environmental changes with severe impacts on certain regions are rarely linked to climate change as a probable cause. Apart from the journalistic coverage, Takyi also criticises the public for being too uncritical:

> The public isn't really interested in the fact that there hasn't been any rain during the actual wet season. Probably they just think that it is something that is happening naturally, and nobody knows what nature presents to us every day. […] About a week ago [October 2022], there was a report of tidal waves in another region in the country and it has displaced about 4000 people, affecting over 200 homes. A lot of it is a result of climate change. However, the attention has moved towards the fact that people have been affected, people have been displaced, people have lost their homes and properties, but they are not tackling the issue as it is. So, we need a holistic approach that will not bring us to the same effects in the future.

According to the journalist's observation, several articles in Ghanaian media report on extreme weather events and other environmental issues as isolated instances without implementing them within the context of climate change. Instead, the articles highlight the people who have been affected without further elaborating on the reasons for the catastrophe. According to Lynet Otieno (Kenya) the role of the journalists is particularly important here, because "journalists are gatekeepers, they are agenda setters and if they keep reporting on the fact that the world is changing, our weather conditions are changing and that we are getting affected by our own activities" there can be a change in people's perceptions of the crisis, the interviewee implied. According to Sharon Willis Brown-Acquah, a freelance journalist from Ghana, one possible reason for a lacking emphasis on climate change could be its perception as too vague and abstract: "Some of them have also tried to cover some one or two topics when it comes to protecting the environment, but when it comes to climate change it's a topic that is very vague."

Similarly, a German journalist referred to a prominent instance of episodic framing: After heavy rainfalls and flooding in parts of Germany in July 2021, media started to pick up the issue of extreme weather events and their relation to climate change. However, only weeks

after the catastrophe, the interviewee observed a declining media interest in this topic (Int. GE 1).

The frequency of the environmental frame in the content analysis is rather high, but in the interviews some journalists focused more frequently and extensively on this topic than others. This may simply be due to a personal focus of each journalist, however, a connection to one of Moser's hypotheses suggests itself. The fact that the Kenyan, the South African, the Namibian and the Ghanaian journalists referred to impacts of climate change and other extreme weather events – as opposed to journalists from the US or the UK – can be connected to one Moser's research. According to Moser (2010), when people are disconnected from the environment, this is then mirrored in the reporting of national media. Moser (2010) states that a "lack of visibility or immediacy" (33) influences the way in which national media report on climate change. Additionally, a further dimension of "this lack of immediacy lies in the general insulation of most modern, urbanized individuals from climate and the physical environment" (Moser 2010: 34). Thus, a protection against "climate-related variability" can reduce "sensitivity to climatic extremes and variability, and thus dismiss any changes" (Moser 2010: 34). Supporting Moser's point, Yokany Oliveira (Namibia) said: "I mean when you're living in a country where there is a drought crisis, you naturally feel drawn to the issue, it affects all of us in this country [Namibia] and so that's what drew me to reporting on climate issues." Teneal Koorts (Namibia) said: "I think the reporting comes a lot with agriculture, because we had a seven-year drought […], it was horrible for agriculture in Namibia and I wrote, actually it was published yesterday, about the effects of droughts on agriculture […]."

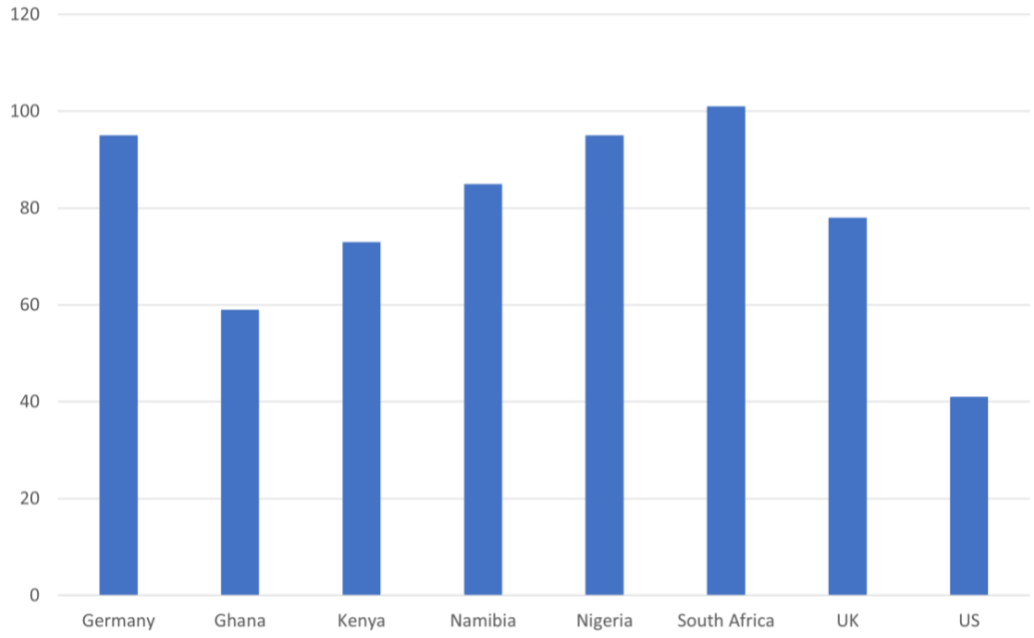
To sum up, the content analysis shows that climate change is related directly to environmental issues in the reporting on most websites. In the interviews, however, not all journalists touched upon this connection. The Kenyan, South African, Namibian and Ghanaian journalists talked about how extreme weather events and other environmental issues are covered by the media and how they are then connected to climate change.

7.1.4. Economic frame

On almost every website, the frequency of use of the economic frame ranks between first and third place compared to the other frames. This means that climate change is frequently framed in relation to the economy. For example, this frame emphasizes "the impact of climate change on the industries outside the agricultural sector, like transportation, insurance, banks, oil producing companies, and the economies" (Agwu & Amu 2013: 15) of the respective country,

and other countries. Similar to the previous environmental frame (see section 7.1.3.), the economic frame is used rather frequently on most websites:

Table 21: Economic frame



The economic frame in the articles includes sections about economic opportunity and innovation as well as economic risk and challenges in connection to climate change. Additionally, section 6.4. already showed that Kenya and Namibia predominantly report on climate change in connection to agricultural issues. In this section, it is explained that agriculture is the economic sector that is quite important in the respective countries. The topic of agriculture presents another sub-frame to the economic frame; the distinction, however, from the environmental frame can sometimes be blurred.

Section 6.4. already showed that *Vanguard* and *The Guardian* (Nigeria) focus mostly on economic issues when covering climate change with a share of 25%, closely followed by 24% of the articles focusing on environmental issues. Secondly, Kenya and Namibia predominantly report on climate change in connection to agricultural issues.

Different journalists touched upon their take on the connection between economic issues and climate change coverage. It came up in a couple of interviews, especially in the ones with the Namibian journalists, a point that might be coincidental. To start with, both, Kingsley Jeremiah (Nigeria) and Catherine Early (UK) see a focus on the economy in climate change coverage. Jeremiah said that "everyone wants to talk about what climate change means for the economy, the meaning it has in the oil sector and so on". The journalist continued: "Nigeria gets about 80% to 90% of its revenue from oil, particularly foreign exchange from oil. I was in

a car recently and the guy was telling me about the price of gasoline. The normal people are also getting engaged in this conversation because they are directly impacted." Catherine Early observed a similar trend in the British press:

> I still mostly write for specialist press, so that can be about anything, but in the mainstream media coverage a lot of it is still seen as environment only. I don't think they have really figured out a good way to cover it in other ways. Economics and social issues are brought into it because if they're covering the wildfires somewhere they'll talk to people whose houses have been destroyed and they'll talk about how much the clean-up is going to cost and that kind of thing. So, it's brought in in that way, but not really in a way that is looking at the bigger picture and how our whole lives are going to change.

Another British journalist agreed that climate change is frequently presented as an economic issue, but that there are also other issues that are reported in this context: "I think it's a political issue, it's an economic issue and it's a scientific issue. But it needs to be brought more home to people to show that it's a serious issue – also for them personally." (Int. UK 3) Thus, a couple of journalists touched upon framing climate change as an economic issue. While they feel it is important that the issue gets covered, they are also aware that climate change is more than an economic issue and influences other areas.

Despite occasional mentions of issues within the oil sector or transnational corporations that contribute to greenhouse gas emissions, agriculture was an issue that came up in a couple of interviews, predominantly in the interviews with the Kenyan and Namibian journalists. This matches the finding from the quantitative analysis that Kenya and Namibia mostly report on climate change in connection to agricultural issues. When asked about the way they report on climate change and which issues they see coming up the most, a Kenyan journalist and two Namibian journalists all referred to agriculture:

> I've done a number of stories on, you know how agriculture in the country, that is Kenya, has changed as a result of changing climates, you know.
> (Int. KE 1)

> I like to write about agriculture and the impact of climate change on agriculture and then also about adaptability solutions or mitigation solutions for farmers in connection to climate change.
> (Koorts, Namibia)
> I think climate change is reported a lot in connection to agriculture, because we had a seven-year drought. It was horrible for agriculture in Namibia. I wrote about the effects of droughts on agriculture and it's actually still ongoing in some parts. Climate change came in and I was like okay guys, we need to make something happening, we need to start making plans.
> (Koorts, Namibia)

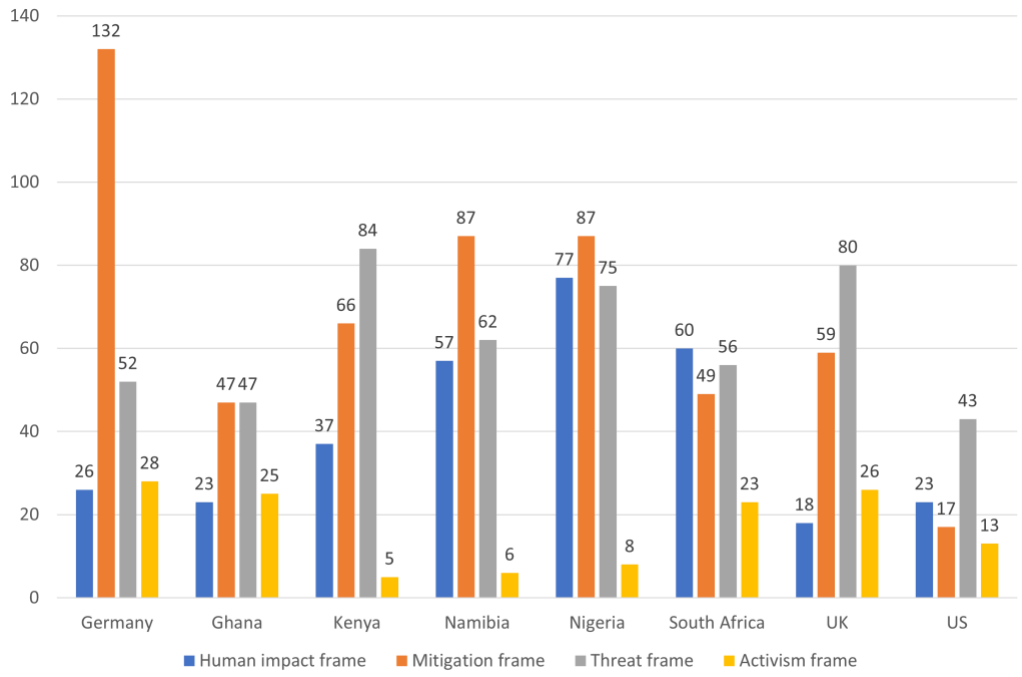
> I'd say with climate issues it is a big question, the big question. […] we see the effects, for example we've got farmers who are jobless, we've got people in villages who are in difficult positions, this is a big issue.
> (Oliveira, Namibia)

In section 6.4, agriculture was assumed to be one of the main issues in Kenyan and Namibian reporting on climate change due to the economic focus on the primary sector. The interviews added another layer to this and showed that agriculture also appears quite frequently in the context of climate change, because the severe impacts of climate change are felt quite intensely in this sector. Journalists from other countries had a more limited focus on this specific issue and touched on the economic aspect of climate change less frequently – if at all.

7.1.5. Other frames

The political, the scientific, the environmental and the economic frame proved to be important in the climate change coverage of most websites according to the quantitative content analysis and they were referenced frequently in most interviews. Other frames are either not as present in the interviews or are not used as frequently in the selected articles. In the following, the remaining frames are briefly presented and analysed based on the content analysis and the interviews. To get a better idea of the relevance of each frame, the following graph shows the frequency of use in the selected articles:

Table 22: Other frames



Human impact frame

The human impact frame refers to the effects that climate change has on people. The Namibian and the Nigerian websites contain the most articles with references to the impact climate change

has on people. The German and the British websites only rarely refer to this aspect (see graphs in chapter 6.6.). Issues relating to the human impact frame of African media include references to basic needs such as food ("Food security in Namibia, a national concern!" (New Era 2020f)), water supply ("Tackling water and sanitation issues demands urgency and speed" (The Ghanaian Times 2021)) and housing ("How we plan to curtail housing deficit in Nigeria" (Akinrefon 2021)). In articles by the *Süddeutsche Zeitung* or *Die Welt* (Germany), natural resources such as water are also framed not only as environmental issues but also in relation to the impact it has on people (original: "Klimawandel: Wann wird das Wasser knapp?" (von Brackel 2021); translation: Climate change: When will water become scarce?). Other references include the impacts that future environmental catastrophes can have on specific regions and their citizens (original: "Klimawandel verschärft Hochwassergefahr an Rhein und Mosel" (Dpa 2021); English translation: Climate change increases chances of flooding in the Rhine and Moselle).

The interviews revealed that in Kenyan and Ghanaian newsrooms, climate change is oftentimes framed with regard to its direct impact on people. As a multifaceted issue with various layers, climate change comes up in different contexts: "One of the contexts is the human interest; how it affects people's daily lives, it affects education, it affects health care, and it affects the general wellbeing of the people, loss of properties", said Frederick Duodu Takyi (Ghana). In the interviews, journalists highlighted the distinction between reporting on climate change in relation to mere politics as opposed to climate change as a human issue with direct consequences (see section 7.1.1.). Takyi emphasised that from his point of view, the human impacts are the real issue behind climate change: "The person who is dying, so this is the real issue; this is really the real issue for the latter part of the world (human lives are involved), this is the real issue."

Similar to the impressions of the Kenyan and Ghanaian journalists, Yokany Oliveira (Namibia) emphasised that it is "both, it's a political and a social issue". Oliveira continued: "In Namibia, I've noticed it's a very political agenda and, in my opinion, there are farmers who are jobless, people in villages who are in difficult positions, this is a big issue. What we want from a social emergency is a political agenda that we can attest to in the media."

However, relating back to the environmental frame, only referring to the consequences it has on people can also create a skewed picture of climate change. Lynet Otieno(Kenya) (as already referred to in section 7.1.3.) explained this issue in the following way:

> For instance, you have cases of landslides and people have died, so when it is reported in the newsroom, it's reported as an event or as a catastrophe that cost lives, but nobody wants to go deeper into what caused it or how this can be prevented.

The (qualitative) material derived from the interviews contributes a more emotional and personal level to mere numbers or concepts from the quantitative content analysis. In particular, the quotes included here from a Ghanaian, a Kenyan and a Namibian journalist show the urgency and the severity of the connections between climate change and the impact on people. This issue is not only reported less frequently in the articles on the British, the Germany and on *The New York Times* website, but also the interviewees from the respective countries did not really touch on this issue. While there is no empirical evidence, the thought suggests itself that the journalists are less conscious of the issue because the impacts are less obviously evident in those countries.

Mitigation vs. threat frame

Mitigation describes the active search for and the realisation of possible strategies to mitigate the impacts of climate change. The threat frame, on the other hand, refers to a more passive notion of fear of the impacts of climate change. This dichotomy is also the reason why both frames are analysed together in one section because to a certain extent they present two sides of the same coin.

Mitigation and threat are two separate frames in the field of climate change reporting. They both were referenced only a few times in the interviews, and references in the selected articles varied quite strongly between the different countries – sometimes they barely came up, while other times they were mentioned more frequently. The mitigation frame is used comparatively more frequently in the articles from the Ghanaian, the Namibian, the Nigerian and the German websites. Looking at the Namibian websites, the mitigation frame is used most frequently out of all eleven frames. Turning to the frequency of use of the threat frame, the Kenyan websites frame climate change as a threat. The Namibian, the Nigerian and the British websites also frame climate change as a threat in a couple of articles.

Articles that include the mitigation frames refer to national or local projects to mitigate climate change ("Green Ghana Project has been successful" (Petetsi 2021)), scientific reports or conventions on mitigation ("Climate scientists to meet in Accra to discuss global warming" (The Ghanaian Times 2019)) as well as preservation and conservation of nature and natural resources ("Namibia pumps N$1,2b into conservation" (The Namibian 2020)). The threat frame on the other hand is connected to words such as "disaster" ("We need to strengthen our resilience against disasters" (The Ghanaian Times 2020b)) or "hazard" ("Understanding climate

change and slow-onset hazards" (Ogunnigbo & Ogunwumi 2021)), and focuses on the different threats that the impacts of climate change pose to nature, the people, the economy and other areas of life.

Looking more closely at the reporting in the different countries, *The Namibian* and *New Era* (Namibia) frame climate change mostly as an environmental or an economic issue. Additionally, they frequently employ references to mitigation and adaption strategies in their articles. They frame climate change as something that needs to be mitigated by creating new solutions and alternatives. Ghana, Nigeria and Germany employ the mitigation frame also rather frequently and present different adaption and mitigation strategies when reporting on climate change. In their study, Agwu and Amu (2013) analysed climate change frames in four Nigerian daily newspapers and found that the majority of the articles used a negative tone in their headlines. The researchers therefore recommend that media organisations should include more frames relating to solution and mitigation strategies when covering climate change (Agwu & Amu 2013). In this research project, however, *Vanguard* and *The Guardian* (Nigeria) actually include a number of passages that frame climate change in relation to mitigation strategies in their coverage.

Moving from solution-oriented frames to a more negatively connotated framing, *The Namibian* and *New Era* (Namibia) as well as *The Standard* and *Daily Nation* (Kenya) and *The New York Times* frame climate change relatively frequently as a threat. The feeling of threat is evoked by the choice of words and by referring to climate change as "an emergency" and a great risk which can trigger concern and establish a sense of urgency. Framing climate change as a threat is directly opposed to framing climate change in connection to possible solutions in the form of mitigation strategies.

On a similar note, Alashri et al. (2016) refer to both solution framing, which includes references to mitigation strategies, as well as threat framing. Solution frames can include references to mitigation or adaption strategies as well as efforts of development and the implementation of different policies (ibid.). While solution frames are prognostic, threat framing takes on a diagnostic nature (ibid.). Here, media texts "tended to highlight devastating environmental impacts caused by climate change, such as floods, prolonged drought, loss of landmass and soil, desertification, sea-level rise, storm surge, heat waves, and more" (ibid.: 162).

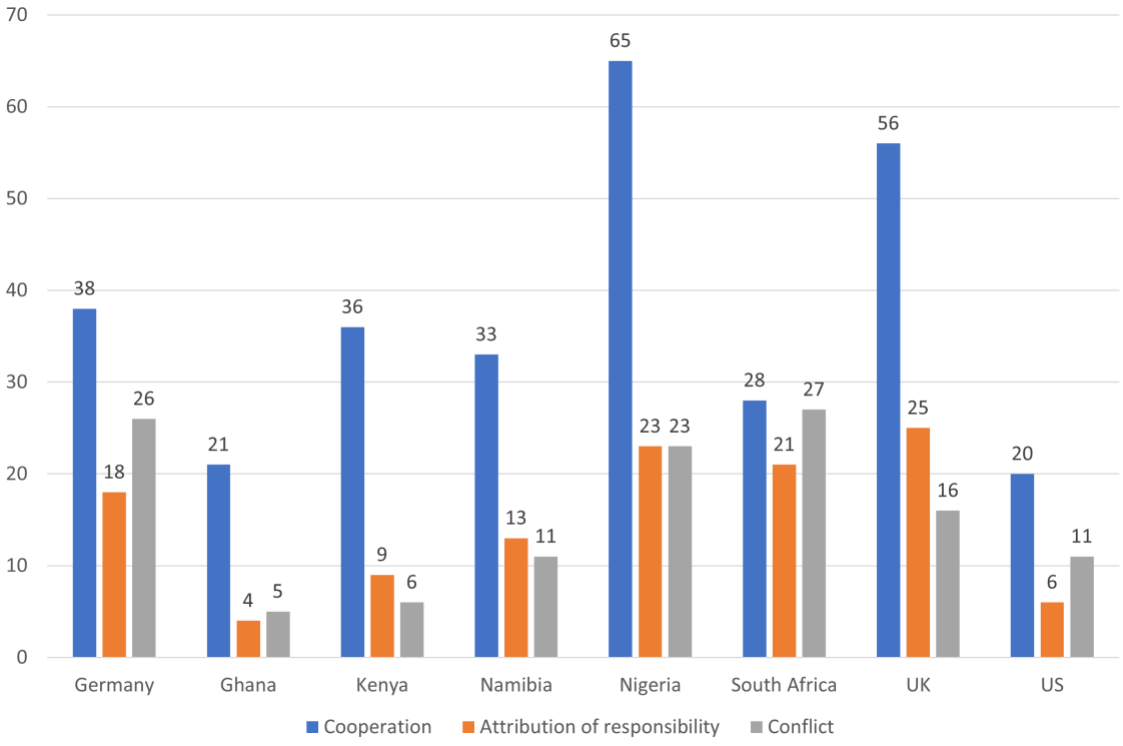
This section shows that climate change can be reported as a threat or in connection to solutions and mitigation strategies. Furthermore, research studies are beginning to emerge in this field that create a link between reporting climate change as a threat as opposed to presenting

a possible solution to that threat. This opens up new areas for further investigation either with regard to the reporting itself and also in connection to the effect it has on the readers or the audience.

7.2. International relation frames

The frames referred to in the previous sections are related to climate change in general. A second group of frames refers to the way in which climate change is framed with regard to international relations and cooperation. The fact that the political frame and other frames – depending on the country – outnumbered the environmental frame suggests that "climate change can and should no longer be boxed into the environmental frame" (Agwu & Amu 2013: 16). Thus, climate change has established itself as an issue that stretches beyond the scientific sphere and has become a broader issue affecting various domains. Based on previous studies, the frames "cooperation", "attribution of responsibility", and "conflict" were tested in the pilot study and were then used in the actual content analysis (see, e.g., Agwu & Amu 2013). This section serves as a preparation for answering the third research question which looks at how international relations are (re)produced through media discourse about climate change in the selected countries. Each frame is analysed and discussed in the following sections and the graph should give a first impression of the frequency of use:

Table 23: International relation frames



The content analysis shows that the frames "cooperation", "attribution of responsibility", and "conflict" are used rather infrequently in comparison to other frames such as the political or the economic frame. Among the three frames, the cooperation frame is used the most frequently. For example, the two Nigerian and the two British websites employ the "cooperation" frame in several articles. One possible reason why the two British websites have used the cooperation frame more frequently in their articles could be the hosting of COP26 by the UK in November 2021 and the coverage connected to this event. Thus, it can be assumed that as the host country, the attention, and simultaneously also the media attention, on COP26 in the UK was particularly high. The results of the quantitative analysis suggest that the cooperative aspect of the COPs was then highlighted especially by the British media.

In the following, each of the three frames is analysed in more detail and the results from the quantitative content analysis are complemented with findings from the interviews. This section is specific to this research project as it not only looks at how climate change is reported and framed in general, but also how international dynamics are taken up by the media when it comes to reporting the global issue of climate change.

7.2.1. Cooperation frame

The general climate change frames that were discussed in the previous sections are used more frequently than the frames "cooperation", "responsibility" and "conflict", which refer to the international aspects of climate change. Out of these three frames, the cooperation frame is used the most. In the quantitative content analysis, the cooperation frame was applied when a journalist writes about international projects and cooperation between countries that are connected to climate change. Phrases associated with this frame include references to "global leaders" or "world leaders" ("Global leaders have highlighted the important role that the just transition to a circular economy can play in ensuring that the high-emitting, and hard-to-abate sectors reach climate goals." (Uwaegbulam 2021b)) as well as international conferences and agreements ("Ahead of the United Nations climate change conference in Glasgow, this November, a consortium of thought leaders has committed to addressing, informing and influencing negotiations in the summit." (Uwaegbulam 2021a)). The UN, climate conferences, and agreements such as the Paris Agreement are frequent topics referenced in the articles that frame climate change as an issue that requires international cooperation. Media attention for this specific aspect of climate change fluctuates and spikes during events such as the COPs and other internationally relevant conferences. Out of all the selected countries, the two Nigerian websites have the highest share of articles that include the cooperation frame in comparison to

other frames. However, the frame is still among those that are used less in comparison with other frames (see section 7.1).

In the interviews, the journalists approached the topic of international cooperation in two different ways: Some addressed the political aspects of international cooperation and how they report on this in their articles, while others mentioned international cooperation in the context of international collaborations between journalists and media companies. The latter interpretation of international cooperation is addressed by more journalists and comes up more frequently in the interviews.

In the following, statements by journalists are included to provide a better understanding of what their take on international cooperation is when it comes to reporting on climate change. One journalist from each of the 8 countries referenced international cooperation between journalists at least once in the interview. Frederick Duodu Takyi (Ghana) had a particularly strong opinion about the need for "a coalition of journalists":

> I think that it would be good to have let's say a coalition of journalists who are specialized in climate issues so we can share ideas and collaborate because perspectives may differ. […] It's a variety of perspectives and for me that is one key area. […] With an international coalition of journalists, the national coalition will also do well because we are not the same or the climate change affects us all differently. Our local contexts are not same. It would be good to also learn from other places and pick best practices and try and localize it in our own context.

Lynet Otieno (Kenya) expanded more on the idea of international cooperation not only among journalists, but also with other organisations such as the UN: "We should have focused desks focusing on changing environment reporting, but then also initiate partnerships with other organizations who can see these loopholes, this gap in the newsroom, even from the UN itself."

The former editor-in-chief at *Mail & Guardian* in South Africa, Sipho Kings, added another aspect: "Climate change doesn't know what a border is, and pollution doesn't know what a border is". This more general statement ties in with other statements by journalists showing that this is an issue of general interest among journalists from different countries. For example, Teneal Koorts (Namibia) said, it is "important that more countries actually become involved and that there are more generalist spaces for journalists to connect and talk about these issues and give each other advice". Yokany Oliveira (Namibia) said that apart from giving advice to each other, "climate issues don't look the same in the south of Africa as opposed to northern Africa or the East or to the rest of Europe. You've got to have a connection to understand the perspective but also to further your knowledge". Here, Oliveira made a distinction also between regions in Africa instead of only comparing the impacts of climate change between continents. This distinction within a continent and beyond emphasises the

complexity of climate change and with it also the need for complexity in climate change reporting. Cross-border cooperation can have a positive influence on the quality of reporting by combining knowledge about climate change and the impacts it has in different parts of the world. According to Ugochi Anyaka-Oluigbo (Nigeria), the distribution of resources can play a role and journalists "can work together to be able to investigate stories with our international colleagues who have more privilege than we do".

There are a few journalists who talk about international cooperation, not in connection to journalistic structures but in connection to climate policy and international conferences such as the COPs. The COP26 was held in November 2021 in the UK, thus it was still present to mind for some of the journalists when the interviews were conducted only weeks after. Yokany Oliveira (Namibia) criticised the conference for not having a big enough impact compared to the great challenges posed by climate change: "When it comes to COP26, I think a lot of Africans think it's rubbish, not because it's a bad thing, but because […] people go there only to show their faces and make very broad statements." On a similar note, Ugochi Anyaka-Oluigbo (Nigeria) referred to COP26 and mentioned a perceived failure of the event in terms of concrete measures against climate change:

> If the COP could not get practical solutions with all the powerful people, how do you think a journalist in Nigeria can bring that solution at COP where world leaders from over 200 countries and other representatives come and talk about climate change […]. For some people it was just a waste of time. If big NGOs, big activists could not fight these rich people, a few rich people who do not mind destroying the world, then I don't know. It's difficult to say what a journalist in general can do compared to what a journalist in Nigeria can do. I mean, we keep reporting this story, we keep fighting, we keep supporting NGOs, but sometimes it's sad for me because it's the same thing over and over. It's hard for me to say this because it makes me want to cry, but at the end of the day, people are suffering and people die, some people are enjoying the wealth and you know generations are going to suffer for this.

This last quote links to the next section and the next frame of responsibility.

7.2.2. Responsibility frame

Most frames were formed inductively prior to the coding and then adjusted after the pilot study. The responsibility frame is based on Agwu and Amu's (2013) study and focuses "on the finger-pointing aspect of climate change outbreak" (13). The frame includes mentions of who is responsible for the occurrence, as well as how and why it happened (ibid.).

In the articles, the Global North and different industries are predominantly blamed for their extensive contributions to greenhouse gas emissions. Phrases associated with this frame include references to the past such as:

> On climate crisis, Mr Guterres said the past ten years were the hottest on record, and global greenhouse gas emissions continue to rise, adding that although Africa was the least responsible for climate disruption, it was among the first and worst to suffer. [...] He said major emitting countries and industrial sectors have a particular responsibility that they are not yet claiming […].
> (The Ghanaian Times 2020b)

Apart from that they include references to the future and to taking responsibility, as written in an article in the *Ghanaian Times*: "The Metropolitan Chief Executive for Sekondi-Takoradi Metropolitan Assembly (STMA), Anthony K. K. Sam, mentioned that protecting the environment was a collective responsibility of all stakeholders and not the political leadership alone." (Boye 2019) Another example is an article published by the Kenyan *Daily Nation* with the headline "Protecting nature is a shared global responsibility, governments told" (Daily Nation 2021) or a section from an article by *The Independent* saying, "US efforts to support people in climate adaptation and resilience don't negate its responsibility to provide pathways to protection" (O'Brien & Bell 2021).

The issue of responsibility is raised in several interviews by journalists from different countries, which in itself suggests that it is of interest when it comes to climate coverage. A journalist from Ghana and a journalist from Kenya were particularly passionate about this topic when thinking about ways to improve climate coverage. Frederick Duodu Takyi (Ghana) said:

> My hope for the future is that climate change is perceived as an international issue, but unfortunately there seems to be a gap between the developed world and the underdeveloped world, it is a gap between the haves and have nots, it is a gap between the rich and poor, it is a gap between the privileged and non-privileged. This gap has a major effect on how the issue will be tackled and how the future will be […]. It would be very difficult to have one voice to solve the issue of climate change.

Here, Takyi differentiates between "the developed world" and "the underdeveloped world" when it comes to the question of responsibility. The journalist would like the issue of climate change to be covered as an international issue more frequently in order to highlight the complex connections and correlations between responsibility for and vulnerability to the impacts of climate change.

And while the above quote expresses a need to see climate change more as an international issue, a Kenyan journalist writing for the *Daily Nation* said, "there is a global consensus on the fact that the most impact is felt in the Global South, in countries like Kenya and in the end, in Africa […], but when you look at the factors that are driving climate change they're mostly happening elsewhere in Northern Europe and in America" (Int. KE 1). Here, the journalist addressed a responsibility of journalists to highlight this issue: "Journalists and media

houses have a huge responsibility […] so that we can draw attention to this, so that we're talking more about climate change and also trying to mobilize the rest of the world to see this issue from our perspective […]." (Int. KE 1) The journalist sees this as the central issue that requires more coverage and at the same time wishes "to move away from reporting on politics and energy all the time" (Int. KE 1) because "ultimately, we are the ones who will suffer more, even before other countries start to feel the suffering through the effects of a changing climate" (Int. KE 1).

In contrast to this stands a response from a British journalist working at *The Guardian* who observed a mostly domestic coverage of climate change where this exact connection is barely made visible: "The topic is kind of mainstream, but it's still very, I think, very domestic focused." (Int. UK 3) However, she sees a clear responsibility with "the industrialized West that created the problem in the first place" (Int. UK 3)

Furthermore, the interviews add another layer to the question of responsibility and broaden the debate about responsibility by referring to the issue of climate justice. While some articles pick up on the issue in relation to climate justice movements such as *Extinction Rebellion* in the UK, some interviewees put specific emphasis on this topic. There are different approaches to this complex issue. In the interviews, the journalists approached it from a national as well as an international perspective: Some saw a lack of reporting on climate justice which they attributed to limited resources, while others already put emphasis on this issue in their reporting.

One journalist from Kenya working at the *Daily Nation* gave his perspective and said, "issues such as climate justice and climate action haven't been captured a lot here, and I think those are some of the areas that we need to give prominence because at the end of the day, someone has to be held accountable for contributing more to climate change" (Int. KE 1). The journalist continued by saying that there is still a dependency of African countries on countries in the Global North with regard to financial aid (Int. KE 1). This then can make it difficult to voice criticism for certain decisions that may cause more greenhouse gas emissions (Int. KE 1). Ultimately, the journalist said: "I think media in Africa and the rest of the world have to be democratised and very intentional about talking about these issues that are about justice." (Int. KE 1)

A German journalist reflected on his perception of climate justice in German media and states that it is still a niche topic which is mostly picked up by certain movements and political parties (Int. GE 1). According to him, it has not become part of the public discourse yet and also not part of the general media agenda (Int. GE 1). Another German journalist who works

for the *Süddeutsche Zeitung* added that he does not focus more on climate justice due to a lack of resources (Int. GE 2). In the context of climate justice, he referred to "indigenous peoples" and the difficulty of reporting on their issues when it comes to climate change due to limited capacities and resources (Int. GE 2). But at the same time, the journalist sees a clear responsibility lies with the media to report those stories and to broaden the view beyond national news on climate change (Int. GE 2). Yet another German journalist, Ricarda Richter, talked about climate justice as one of the central themes for one of the upcoming special issues that focuses on climate change. Here, Richter related climate justice more to a national instead of an international context and how climate justice plays out in Germany. Already these three sections from interviews with German journalists and their take on climate justice in the media shows the complexity of this issue and the different angles from which journalists can approach this topic – be it national or international, with or without clear connections to responsibility.

Catherine Early, an environmental journalist from the UK, also approached climate justice from a national perspective and said that "there's also a lot of climate justice issues here and I don't see that getting much coverage just in terms of people's jobs that are going to be affected". However, while Early generally perceives the issue as important, coverage on this is still rather limited in her view: "It's all about climate justice and who should pay for net zero and so on. It shouldn't be the poorest people who have to pay as much, but I don't know how well that's really explained the choices that the government's going to have to make." A journalist from the US made a similar point by looking at the coverage of climate justice from a national perspective but observing a lack thereof from an international angle. The journalist said:

> I think that nationally there's a lot more focus on climate justice. So, in the last five years, there was really a big change everywhere, […] after the George Floyd murder last year [2020] and the wave of protests. I think a lot of other climate outlets started focusing more on climate justice because there was this sense that this is really important. The area in which that has occurred has been mostly US-centric. […] I think nationally there is an increasing focus on climate justice, but internationally it's still pretty slim.
> (Int. US 1)

In contrast to these two journalists, Isabelle Gerretsen (UK) focused on climate justice from an international perspective: "I think climate justice plays a huge part and especially when you speak to young people about climate change, it's the thing that comes up a lot." However, Gerretsen still observed a need for improvement and criticised the "national focus" in British newspapers: "If they are focusing on what we are saying on other countries, it will be the kind

of obvious. […] And there is enough climate news locally within Europe to just cover that and I don't see a huge amount of it."

Apart from the point that journalists in the UK and the US report on climate justice mostly from a national perspective, the journalists also discussed the way in which the view is broadened to a more international perspective. In the above paragraph, the British journalist touched on a distinction in climate coverage between countries that are perceived as newsworthy as opposed to countries that are viewed as more distant. On a similar note, an American journalist observed that "when there is coverage of people who are most at risk of the impacts of climate change, so small island states or people living in these environments, it tends to be very much like one short note" (Int. US 1). And while the journalist expressed a general understanding for the media mechanisms behind this, she noted that it "ignores how these small island nations are working to do various things to combat climate change" (Int. US 1). This is only one example of "different issues around the way that the US coverage looks at the international scene" (Int. US 1).

These statements can be connected to Galtung and Ruge's (1965) news value of (cultural) proximity and further also Harcup and O'Neill's (2017) concept of "relevance". According to the interviewees, the news value of (cultural) proximity or relevance can be applied to the selection of climate news especially when it comes to reporting on other countries in connection to climate justice (Int. GE 2, Gerretsen, Int. US 1). Galtung and Ruge (1965) observed that "the lower the rank of the nation, the lower must the cultural distance be" (82) which means that "if a nation is low in terms of rank it must compensate for that in terms of proximity" (ibid.). According to the journalists from Germany, the UK and the US, the hypothesis that "the event-scanner will pay particular attention to the familiar, to the culturally similar, and the culturally distant will be passed by more easily" (Galtung & Ruge 1965: 66f.) can be supported in the coverage of climate change and especially of climate justice. So, while the journalists agree that "every publication needs to focus on the international effects including the Global South" (Schwartz, US), they are part of the system and thus influenced by these media mechanisms. The analysis of this frame shows that there are issues and challenges when covering climate change. Further conflict issues that come up in the articles as well as the interviews are discussed in the next section.

7.2.3. Conflict frame

From an international perspective, cooperation and questions of responsibility can also be connected to possible areas of conflict. The frames of responsibility and conflict cannot be separated from each other distinctively because an attribution of responsibility for contributing to rising greenhouse gas emissions can be connected to a conflict between two groups or countries. In the case of climate change, it may be the case that one group gets attributed the responsibility while the other group has to suffer a disproportionate amount of the consequences. The 'attribution of responsibility' frame already touched on the issue of climate justice within nations and across the world. The concept in itself refers to a conflict.

The quantitative content analysis shows that only few articles frame climate change in connection to conflicts – be it national or international. The Nigerian website *Vanguard*, especially, frames climate change as a conflict-provoking issue for farmers due to severe effects on their land and crops, for example: "Herders and farmers clash over land: Matters arising." (Òrúnbon 2021). *The Namibian* also focuses on national conflicts that are connected to or caused by climate change, for example: "Members of Namibia's indigenous San communities say a combination of prolonged drought – driven by climate change, unrestrained grazing and deforestation on their lands – is leading to conflict between them and their more dominant, pastoralist neighbours." (Cupido 2020) The two Nigerian websites include articles that cover the international dimension of conflicts, for example:

> With hunger on the rise, greenhouse gas emissions rising, and the world's most vulnerable bearing the brunt of conflict and inequalities, the two-day SDG Summit is bringing together leaders from governments, the private sector, civil society and international organizations to help generate the ambition and impetus needed to put the world on track to achieve the Sustainable Development Goals.
> (New Era 2019)

> António Guterres, UN secretary-general, says the global climate emergency is a threat to security and stability. 'With extreme weather and disaster becoming more frequent and severe, disputes over dwindling resources risk fuelling climate-related conflict.'
> (New Era 2019)

In addition to the sections from the articles, some interviewees touched on aspects surrounding different areas of conflict in relation to climate change. One area of conflict lies within the international community. After the COP26 at the end of 2021, conflicts between different parts of the world received more attention. Frederick Duodu Takyi (Ghana) observed:

> I think our President [Nana Addo Dankwa Akufo-Addo] during the COP, the recent meeting in Glasgow, was talking about the same thing, you see, the international community, largely the West, exploited the same environment we are trying to protect today to build their industries and living standards. […] Because the contribution of developing countries, especially Africa, to the effects of climate change is very minimal, in fact it is a huge gap.

Similarly, Yokany Oliveira (Namibia) said: "COP26 it was, I think a lot of Africans think it's rubbish, not because it's a bad thing, but because it's just so high level, and people go there to show face and make very broad statements." (see section 7.2.2.)

Apart from specific statements about the COP26, Kingsley Jeremiah (Nigeria) spoke about ongoing conflicts between regions more generally:

> I personally think there is some sort of double standard between what Europe and America are aiming at and what the situation is in Africa. […] As much as Europe has peace-making efforts and possibly has a fund to fight climate change, they neglect it in Africa on the long run. […] If you feel you're defining what is needed for you and you are defining another standard for the rest of the world, I consider that to be a double standard, so there's need for change.

The Nigerian journalist criticised the varying standards that are defined for different parts of the world and the tendency of countries in the Global North to claim interpretational sovereignty when defining what it means to "fight climate change". Similarly, Takyi (Ghana) was critical of US-American corporations and their role in causing environmental issues:

> For most of these smallholder farmers or fishermen, what activity do they do which we consider to be so bad for the environment or contribute very significantly to the effects of climate change as compared to the bigger corporations? These bigger corporations control the way in which so many things happen around the world. In my opinion, in the US and other developed economies and their corporations, who are today calling for protecting the environment, their corporate, social responsibility appears to be a scheme to cover up. Because why do they sponsor global conversations around climate change when they are largely the cause of it? Perhaps they should genuinely support the transformation of developing countries to reach a level where we can reduce negative activities affecting the climate and end climate change once and for all.

This quote again shows a perceived dichotomy between individuals and corporations and between the Global North and the Global South. Journalism can introduce attributions and reproduce stereotypes that exert "various forms of domination, be they colonial, neo-colonial, racial, national, gendered, and/or class-related" (Nothias 2020: 247). This shows that postcolonial theory in many ways influences journalism studies because the journalistic system is part of larger power structures and historical relationships of domination and resistance. Nothias (2020) and Kumar and Parameswaran (2018) have already stressed the importance of addressing the historical implications of colonialism also in the media.

To sum up, the small number of frames related to climate change from an international perspective (cooperation, responsibility, conflict) suggests that climate coverage has a strong national focus. This notion can also be supported by the countries that are referenced in the selected articles. This observation is linked to this project's hypothesis, suggesting that climate change reporting in all selected countries has a more national focus. All websites mainly refer to the country or continent they are located in and where their audience is predominantly based. Other country references are far less frequent.

8. Structural issues and challenges

8.1. Structural or content-related issues

The first two chapters of the analysis focused on the main issues, the news values, and the framing of climate change in the media. This chapter looks at (structural) issues and challenges in climate change reporting. Following the second set of research questions, this chapter aims to investigate the structures and issues that influence the coverage. The findings from the interviews are mainly used to answer which structural or content-related issues influence the reporting of climate change (RQ 3a).

The interviews were coded according to the issues that the journalists mentioned in their responses. All sections where the interviewees referred to issues or challenges were then categorised according to organisational, structural, and societal level, and grouped together thematically under specific headlines within these overarching categories. The headlines were formed inductively from the material in order to best reflect the sections from the interviews. If an issue was only mentioned by one journalist, it was not included as an individual category. If it was mentioned by two or more journalists, the issue was noted down. When the journalists referred to the same issue in a slightly different way in terms of wording, they were still put under the same headline. Firstly, this section gives an overview of the issues and challenges and how they match between countries and across continents. Secondly, the six categories that have been identified through the interviews will be explained and analysed in the following sections. The three overriding categories are briefly explained here:

The first category looks at the operational level, the level where the actual content is produced. The first sub-category refers to a general observation by a few journalists that the level of climate coverage and media attention for this issue is (still) too low. The second sub-category refers to a critique by journalists that oftentimes news stories have no apparent link to climate change even though they focus on a related issue. This is the case, for example, when a journalist writes a story on an extreme weather event and makes no connection or reference to climate change or to the possibility that climate change makes these events more likely. The third sub-category on the operational level refers to a (lack of) climate literacy among the audience. This can be a challenge for journalists who then have to convey complex content in a comprehensive form.

The second category moves to a more structural level beyond the reporting itself. The first sub-category criticises a lack of resources in the field of journalism to properly report on the complex issue of climate change. This, for example, entails hiring (or failing to hire) expert

journalists to cover climate change exclusively. The second sub-category is connected to this and refers to a lack of knowledge about climate change (science) among journalists and also a lack of training opportunities to enhance said knowledge. Trainings, however, can only be organised when there are enough resources. Lastly, the third category looks at a societal level and focuses on another structural issue within the field of journalism in form of gender-based issues.

The following table shows that some challenges stretch across countries and even continents, while others are limited to one or two countries only. Additionally, some countries deal with multiple challenges, while others seem to face fewer issues and challenges according to the interviews.

Table 24: Issues and challenges

	Issues and challenges	Ghana	Kenya	Namibia	Nigeria	South Africa	Germany	UK	US
	Operational level								
1	Not enough coverage / media attention				x			x	
2	Story has no apparent link to climate change	x			x				
3	Climate literacy of audiences			x	x	x			
	Structural level								
4	Lack of resources				x	x	x		x
5	Lack of knowledge / training	x	x	x	x	x	x		x
	Societal level								
6	Gender-based issues				x	x			

The issue that appears most frequently and in multiple countries is ‘lack of knowledge / training’, followed by ‘lack of resources’ and ‘climate literacy’. The latter is an issue that was only mentioned by journalists who work for African media. The other issues are not limited to one specific region or continent. At first glance, it already becomes obvious that the two issues of ‘lack of knowledge / training’ and ‘lack of resources’ are intertwined on a structural level, and the former can most likely only be solved in connection to the latter. Additionally, the table shows that the Nigerian interviewees referred to the highest number of issues while the British journalists only mentioned one in the interviews. Ghana and Kenya range in the middle with

three categories that came up in the interviews. The following sections deal with each of the issues and challenges.

8.1.1. Operational level

Not enough coverage or media attention

One issue that Nigerian as well as British journalists mentioned in the interviews was that, in their view, climate change still does not get enough media attention. And while this may not be a surprise for environmental journalists to say, past studies investigated the development of the level of coverage. According to different studies, there has been a general increase in media attention for this issue (see e.g., Boykoff 2011, Schäfer, Ivanova & Schmidt 2011). Studies refer to the historic development of the level of climate change coverage and confirm the overarching trend that media coverage has increased over time (see e.g., Boykoff 2011, Schmidt 2016, Grundmann & Krishnamurthy 2010). However, Comfort, Tandoc and Gruszczynski (2020) show that in comparison to other news topics, climate change still receives comparably less attention from journalists and media in general. Instead, the topic is oftentimes presented in connection to natural disasters, extreme weather events or international conferences on climate policy (ibid.).

Here, the interviews can be helpful to get a better understanding of what a potential lack in media coverage of climate change actually means. Ugochi Anyaka-Oluigbo (Nigeria) said, "I don't think the environmental issues are still getting enough attention as they should. I think they pay attention to business stories, so there's a business desk, there's a sports desk, there's no desk for our reporting". Anyaka-Oluigbo continued: "During the COP, people report and focus on these issues, but after that it depends on the reporter who is focused on this to continue to tell those stories". This impression has been supported by several studies about media attention on climate change. For example, Gupta (2010) found that there were peaks in media attention, for example, when COP15 was held in Copenhagen in 2009 (Gupta 2010). Similarly, Boykoff (2011) observed that "the combination of 'Climategate' and COP15 failures provided news hooks aplenty for continued stories on climate change" (36). Subsequently, global climate change coverage decreased after COP15 in December 2009 (Boykoff 2011). A similar trend in media attention can be observed in this study when media attention increased during COP26 at the end of 2021 (see section 6.4.). Kingsley Jeremiah (Nigeria) had a similar view: "One of the things that needs to happen particularly in our part of the world is to increase awareness," Jeremiah said, "in our part of the world", referring to the African continent and making the

distinction between climate coverage in this region and climate coverage in other parts of the word.

Isabelle Gerretsen (UK), too, observed an increase in media attention that is mostly episodic and focused on specific events: “I can imagine it to be difficult at some places, and like I said, it is getting more coverage, but I do think that it’s only certain times of the year, when it will be front page everywhere. For example, when it’s not COP26, then I rarely see it on the front page.” Thus, the issue of media attention and a potential lack of coverage is closely related to the issue of media mechanisms. These mechanisms focus on specific events instead of creating a constant flow of reporting on climate change.

One issue that only Sharon Willis Brown-Acquah, a journalist from Ghana, formerly working at the *Daily Guide*, brought up is that “journalists don’t really take it [climate change] seriously”. She referred to journalists as gatekeepers and agenda setters “who are not interested in it [climate change] because it doesn’t sell”. Instead, the management system requires journalists to focus on “what the president said”, stated Brown-Acquah. In contrast, a Kenyan journalist at the *Daily Nation* mentioned that he has seen some improvement “outside of his organization” (Int. KE 1), thus far “because rather than being treated as a small element, this [climate change] is now one of the big areas where more emphasis has been placed” (Int. KE 1).

Story has no apparent link to climate change

The issue of (false) attribution has been widely discussed in the field of climate science. In fact, attribution science has become sufficiently recognized over the past few years (Cho 2021). Attribution science tries to determine how much climate change has influenced a specific extreme weather event. In this context, it does not determine if climate change has caused the event, “but if climate change made some extreme events more severe and more likely to occur, and if so, by how much” (Cho 2021). So while there are articles that falsely link an issue or an event to climate change, there are other instances where the opposite is the case. This means that there are articles which cover a climate change related issue and do not specifically refer to climate change as the cause of the event.

Turning first to the issue of false attribution, Ghanaian and Nigerian journalists mentioned issues of attribution in the interviews. Ugochi Anyaka-Oluigbo (Nigeria) referred to this issue and connects it to a lack of knowledge:

> If the reporter is knowledgeable about the issues, she or he makes that connection, but oftentimes they just report on the flooding. They don't say, oh, it's because of climate change or interview scientists who make the connection, but they just say, five people died because of flooding and that's the story.

Anyaka-Oluigbo stressed the importance of acquiring specialist knowledge to write informative and factual articles that link climate change to these environmental disasters – where appropriate – instead of referring to these events as isolated instances. The Nigerian journalist continued and said, "it takes a reporter who understands the issue to make the connection between climate change and these issues" because otherwise "you see that we just report the disaster that's happening sometimes, and we don't make that connection". Going one step further, the South African journalist Sipho Kings said that "all other reporters need to think about climate in their reporting". In his view, it is not only a lack of knowledge among specialist or environmental reporters but also a case of knowledge acquisition within an entire newsroom and among other reporters.

Two approaches can be identified: Some interviewees wished for specialised reporters who are knowledgeable about climate change. Other journalists went one step further and wished for the entire newsroom to be sensible of this topic and to properly report on it, also in connection to other issues. The first model could look the following way: "They [environmental journalists] need to be at a climate change and environment desks, independent ones, standalone desks that focus on climate change and the environment and then they can relate to other desks." (Otieno, Kenya) The other approach is more general: "The media houses in general need to find a way to directly focus more on climate change." (Jeremiah, Nigeria) Similarly, a German journalist at the *Süddeutsche Zeitung* said that they aim for a broader, more inclusive approach, where the brainstorming processes stretch across different desks (Int. GE 2). Neither of the two approaches contradicts the other one.

Furthermore, Willis Brown-Acquah (Ghana) gave a similar example: "I mean when you talk about a flood, they don't talk about the fact that it may be related to climate change." Brown-Acquah also explained that journalists often highlight the direct consequences of the events without making a connection to the overarching issue of climate change: "They only talk about the fact that people have been affected or homes have been destroyed or there is a minister coming around to check on the affected people. But they never really talk about climate change." Yokany Oliveira (Namibia) did not address this issue in particular, however she saw a general "lack of data scientists in the country and region". Oliveira emphasised the importance of creating a connection between data science and journalism when it comes to climate change reporting: "Data and evidence matters when you're reporting on those issues."

The interviews revealed that journalists who work for African media companies miss links to climate change in a lot of the media coverage – especially in articles on environmental disasters such as flooding. This impression is supported by the results from the content analysis. The analysis revealed that the Namibian and Ghanaian articles mostly include climate change as a secondary topic which is only mentioned in one part of the article instead of being the focus of the article. Fewer articles deal with climate change in addition to another issue and an even smaller number of articles has climate change as their primary focus. According to the interviewees, the specific events are presented as the main issue and climate change is either not mentioned at all or only included as a side note in the article.

Climate literacy of audiences

Another issue that journalists mentioned in the interviews was climate literacy which stretches beyond the journalistic sphere itself. This does, however, have an important influence on climate change reporting and vice versa. The United Nations Educational, Scientific and Cultural Organization (UNESCO) defines literacy the following way:

> […] ability to identify, understand, interpret, create, communicate, compute and use printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals to develop their knowledge and potential and to participate fully in their community and wider society.
> (UNESCO n.y.)

Climate literacy is a term that was introduced in mid-2000. According to the US Global Change Research Program, climate literacy is "an understanding of your influence on climate and climate's influence on you and society" (Global Change 2009).

Furthermore, Miléř and Sládek (2011) state that "basic climate literacy for all is crucial" (152). However, politicians and the public "have been manipulated by powerful lobbying by the oil and coal industry" (ibid.) and this led to the "denial of anthropogenic climate change" (ibid.) in competition "with the data reported by climate scientists" (ibid.). Similarly, studies have shown poor climate change knowledge among lay people (McCaffrey & Buhr 2008). And as already established in the literature review, media play a central role in communicating the complex issue of climate change and can ideally contribute to raising awareness and to increasing public climate literacy.

The issue of climate literacy was also addressed in the interviews – especially by journalists from Namibia, Nigeria, and South Africa. The journalists all agree that it is their responsibility to "increase awareness" (Jeremiah, Nigeria) and "explain in layman's terms

what's happening around the world" (Oliveira, Namibia). This, however, requires "skills for the journalists" (Oliveira, Namibia) and "a level of content knowledge that is quite considerable" (Joubert, South Africa).

Similar to journalists who continue to learn about different aspects of climate change, the public also continues to hear more about issues surrounding climate change which can then ideally increase climate literacy. According to Leonie Joubert (South Africa), journalism has considerable influence on the public's level of climate literacy. Joubert offered the criticism that "for a long-time climate was treated as a political story" with "two sides of the argument". And while there has been a shift, "it has been a long frustrating process" (Joubert, South Africa). Joubert observed a low level of climate literacy and, at the same time, low levels of climate interest in South Africa. For this reason, the journalist spoke of "a duty globally and in South Africa around informing the public about the most dire threat to our species and our civilization". Sipho Kings (South Africa) had a similar view and said: "All those people know that the weather systems and the climate they're living in are changing. It is a fact of their lives. They just don't take it as climate change because they're either not exposed to that word, or it hasn't been part of the education, or journalism hasn't explained it well enough." In the context of climate literacy, this means that people are not necessarily aware of the specific term of climate change and what it entails, but they are conscious about the changing climatic conditions in their region: "They were aware of the issue, it's more about how we frame it. And that goes to the thing of making climate all too often an elite thing. We are like, oh, it's big science, it's big policy, it's out of your reach." (Kings, South Africa)

In South Africa, climate literacy was addressed as an issue which, for example, Joubert attributed to the "schooling system which has been so poor with our Apartheid system, where the majority of the population was not given adequate schooling". This information, together with the fact that most other journalist especially from the UK, Germany and the US did not mention climate literacy as a pressing issue when it comes to reporting on climate change, suggests that climate literacy is currently a mostly country-specific issue.

8.1.2. Structural level

Lack of resources

Some of the structural issues and challenges are intertwined and show correlations between each other. This means that when one issue is approached and even solved, this then influences other challenges that journalists may face when reporting on climate change. This is the case

for the issue ‘lack of resources’. By solving this issue, other challenges could also be approached such as a lack of training and knowledge among journalists.

Journalists from Nigeria, South Africa, Germany, and the US mentioned a lack of resources as an obstacle to properly report on climate change in a more comprehensive and progressive way. Generally, there seems to be a wide range of opinions on what a lack of resources actually means. For example, Anyaka-Oluigbo (Nigeria) said, “some journalists in Nigeria a lot of times don’t get paid for their job”. And especially in the environment beats, support is lacking, according to her: “It’s like the poor people’s beat. Nobody gives you anything to cover it. A lot of people were not interested in covering this and I mean these issues are here, but there’s no money you get from it.” Anyaka-Oluigbo continued:

> I wish there could be enough financing for journalists who are reporting on the environment, it’s not enough. A lot of the times, they have to go for the beats that would pay them. […] And the truth is, I don’t have much financially to show for this job, but this is all I want to do for the rest of my life. […] And then I wish that international organizations who recruit Nigerian environmental journalists would pay them what they are worth, what you would pay a journalist, for example, from the UK. […] So, I wish they would appreciate the work that journalists in Africa or in developing countries do and pay them what they’re worth, support them. […] I wish journalists in Nigeria, in Africa, in developing countries can get that kind of support […].

Apart from resources that are necessary to at least have a basic level of reporting on climate change, Leonie Joubert (South Africa) was quoted in section 7.1.2. that reporting on science also needs “evocative storytelling methods” to create more understanding of the complex context. As already stated in section 7.1.2., this is an ideal scenario that “takes time and needs space” (Joubert, South Africa) and therefore is connected to sufficient resources. Former editor-in-chief at *Mail & Guardian* and current editorial director at *The Continent News*, Sipho Kings, said: “To have more resources, the people at the top need to believe that this is an important beat outside of just saying that there is a COP happening”. He continued: “When I look at my budgets every year, I will assign resources to people to report on climate change and also the people who own the media companies need to sign off on those budgets.” Kings added: “I think that’s where the change needs to happen.” In his former position, Kings encouraged *Mail & Guardian* to join the global climate reporting network *Covering Climate Now* in 2019. In a comment, he explained this decision: “To better cover the climate crisis, […] the Mail & Guardian will publish stories about the climate crisis from around the world. This is journalism that comes from *Covering Climate Now*, a network of more than 300 publications that are committed to covering the climate crisis.” (Kings 2019b) In the interview, Kings referred explicitly to the business side of journalism:

> The people at the top need to believe that this is an important beat outside of just the COPs. […] And if you have more reporting, everything else will happen. You'll get more collaboration, and you'll get more sharing of stories across continents. So, the key is getting people to believe it's important. (ibid.)

A German journalist at *Süddeutsche Zeitung* emphasised that climate justice is an important issue to cover, but that the resources are limited, and correspondents cannot cover every issue: "Oh well, we also don't have unlimited resources." (Int. GE 2). While resources present a challenge for every beat, Lynet Otieno (Kenya) acknowledged that a climate change story may actually require more resources because it "is much more expensive than writing, for instance, a political story because, you cannot tell a climate change story by simply sitting in the office, you have to go out in the field […] and make your own observations". This issue has also been enhanced "by the economic impacts of COVID", according to Kings (South Africa), which has "closed a lot of newsrooms and definitely got rid of specialist reporters in a lot of newsrooms and when people are just struggling to survive, […] you're focused on that and the story nearest to you, and the easiest to do."

Lastly, John Schwartz (US) added that "society needs to support journalism". At the same time, he emphasised that "I'm not saying the Pittsburgh Post-Gazette needs to have bureaus in 20 foreign countries, but it can't just be The Times". Thus, media should aim to adapt and build up more resources, while the public also needs to understand the importance of independent, well-resourced publications and media companies (Schwartz, US).

The different aspects brought up by the journalists about a lack of resources show that this is an international issue. There is no limitation to one media company or one country, but rather this issue stretches beyond country borders and affects some journalists or media companies more than others.

Lack of knowledge / training

The second category 'Story has no apparent link to climate change' ties in with the next point: lack of knowledge / training among journalists. Almost every interviewee, except for the British journalists, mentioned a perceived lack of knowledge about climate change among journalists and a lack of training to increase said specialist knowledge.

Lynet Otieno (Kenyan) referred to a lack of knowledge which she justified by a shortcoming of proper training for journalists: "I think it's because of a lack of knowledge. There's no real focus and proper training on how to cover climate change or how to report on climate change, so they will just do it." According to Otieno, this issue is not only connected to a lack of training, but also to a missing specialisation of journalists: "Of course, a journalist

who is not even specialized will go to a place where such a catastrophe has happened and report it in the way they would have done a political rally and report what they saw. And that's it, full stop. There's nothing analytical." Again, this links directly to a lack of resources. Otieno pointed out that they cannot report properly "because we don't have the journalists, they have not been trained, so their knowledge is lacking, the training is lacking".

Similarly, Yokany Oliveira (Namibia) mentioned that when she worked at a daily paper, "there wasn't much training on this particular topic, the training was very short-term thinking". One reason she provided was the fast-paced environment. Oliveira said that "it's tough because also at the end of the day you have a responsibility to be the most informative and factual". The journalist continued: "My biggest wish is for newsrooms to invest in journalists who want to do this particular beat, the reporting and to give them the space to do their research." Oliveira concluded that when it comes to climate change, which is a scientific issue, training for journalists is crucial. Ugochi Anyaka-Oluigbo (Nigeria), and Lynet Otieno (Kenya) supported the above points, and both wished for more training opportunities especially for young journalists.

Sipho Kings (South Africa) also referred to the issue of a lack of training opportunities for (young) journalists in environmental and climate reporting. As editor-in-chief, he had specific responsibilities including budget and planning. Thus, Kings knows which realistic changes can be made in this system in the future. First, he criticised that if there are "general news and politics reporters covering something with a lot of science", then there is the possibility that they "reach the wrong conclusions even with the best of intentions". To conclude, training is extremely useful, ,in reality, however, it can prove more difficult: "Besides from the costs of all of it, the economics are so bad. It's very hard saying to newsrooms, you need to give a reporter a week or a month to go and do some training and learn things." (Kings, South Africa)

8.1.3. Societal level

The last issue in section 8.1. lies on a societal level and affects not only climate change reporting but has a greater impact beyond journalism. The issue of gender-based discrimination was mentioned by three journalists from Nigeria and from South Africa. All three journalists – two female, one male – have been working as environmental journalists for quite some time in different (international) contexts.

Ugochi Anyaka-Oluigbo (Nigeria) started by pointing out that "sometimes it's challenging as a mother to take care of the kids […] and as a woman it sometimes affects me".

She continued: “And then you see men who are going further and further and you’re behind where you’re supposed to be. […] Woman journalist should get all the supports they need to keep reporting on the environment, whether it be on maternity leave, wherever they wish to keep working.”

Leonie Joubert (South Africa) brought up another point: “Just one last thing. This is something that really gets me, my god, really irritates me. And again, I don’t know why it’s taking me so long to wake up to this.” Joubert then referred to the book “The Authority Gap” by British journalist Mary Ann Sieghart: “A man is regarded as more authoritative by nature because this is how society is conditioned. As a result, woman or authority figures come along with the brains full of content and they really struggle to get taken seriously.” The South African journalist continued to make connections to the field of journalism where she has experienced this kind of conflict and discrepancy based on gender:

> It has kind of switched me on also to this enormous frustration. I just don’t think that the work is taken this seriously because I’m a woman or female. This is what women experience all the time. But then also that many men just really struggle to receive authoritative information from a woman because it strengthens their position at the top of the hierarchy. So, there you are trying to put this urgent message [of climate change] out, and people won’t listen to you because they don’t want to. It’s very sad.

The South African journalist Sipho Kings also briefly mentioned this issue when he referred to the structural challenges for climate journalism especially “in unequal countries”. Kings explained that, in his view, becoming a journalist is oftentimes tied to a specific social background and “there are huge issues of inequality and gender that come into play”. According to Kings, this is a structural issue and because of this, “you don’t have great representation in the beat [on climate and environment] which is a much bigger societal problem that needs to get solved outside of journalism”. Here, he tried to locate the business of journalism in a broader context of social injustices, and also criticised that in journalism all people need to be paid a living wage, “especially interns”. Kings concluded: “This is a global issue in terms of free labour […] and that just perpetuates everything that’s already wrong with the world. So, that’s a huge problem in a country like South Africa with such racial and gender disparity.”

While this project can neither empirically confirm nor deny these statements, the interview passages should still be considered when it comes to issues and challenges in climate change reporting. All three journalists bring up a similar structural issue that stretches over countries and that affects different fields of people’s – and especially women’s – lives. Future studies could investigate further the effects that gender-based issues have on climate change reporting and how working on solving this issue could potentially improve climate coverage.

Operational issues (see section 8.1.1.) can be approached by environmental journalists on a low-threshold level. Structural issues (see section 8.1.2.) usually "require management attention and/or financial investments to be overcome. But they can be overcome." (Blau 2022) Issues on a societal level, as presented in this section, are usually much harder to overcome and it does not necessarily lie in the hands of environmental journalists or editors to solve them. And even if some of them cannot be overcome in the near future, it is still valuable especially for newsroom leaders "to factor them in, a bit like you would factor in a compass deviation" (ibid.).

8.2. National and international structures

Media systems and journalism are connected to and fulfil different functions in society. On a national level, media are embedded in societal structures, while aiming to remain balanced in their reporting. For example, Hallin and Mancini (2004) established the close connection between political systems, media systems and news journalism in their study. This means that even global topics and events – like climate change – are domesticated within the national context. The phenomenon of political parallelism of news outlets, however, has evolved over the past decades. With a growing interconnectedness between countries and globalised international structures, journalism can become a soft power in international relations and move beyond the national level. So how do national journalists cover international issues – including climate change?

Following the depiction of media as having soft power in international relations or as functioning as a non-state actor, Luke and Tuathail (1997) argued that the media can not only communicate foreign policy and its implications, but they can also put pressure on national and international institutions and thereby challenge them to (re)act. Broadbent, Sonnett and Zhengyi (2016) focused on the connection between international relations and climate change reporting. They stated that "realist international relations (IR) and world society theories predict different global distributions of frames about climate change" (ibid.: 5). The realist theory of international relations is only one theoretical approach. Mapping the entire field of international relations would go too far. However, other points that Broadbent, Sonnett and Zhengyi (2016) bring up are related to this project and act as a base for further analysis. Keeping the focus on the realist approach, the assumption is made that "nations would frame their response [to climate change] in terms of their immediate self-interest" (Broadbent, Sonnett & Zhengyi: 5; see also Ciplet, Roberts & Khan 2015). This is because the theory assumes that national political

and economic interest are at the core of every decision or action taken by a nation. Following the realist approach, Broadbent, Sonnett and Zhengyi (2016) assume that the press would focus on the potential negative consequences of emission reduction on the national economy and security. Conversely, this theoretical approach "does not recognize the importance of the global environment as a factor in shaping the national interest" (ibid.: 5).

This section builds on the preceding two analysis chapters and aims to answer the final research question (RQ 3b): *How are international power relations (re)produced through media discourse about climate change in African countries in contrast to countries in the Global North?* The quantitative analysis showed that most frames about climate change have a national perspective focusing on issues related to politics, the economy, or the environment as well as threats or national mitigation strategies (see section 7.1.). Furthermore, the quantitative content analysis revealed that the second group of frames (cooperation, responsibility, and conflict) is used less frequently in comparison to the other frames mentioned above. Among the three frames 'cooperation', 'responsibility', and 'conflict', the cooperation frame is used the most frequently (see section 7.2.).

Indications of frequency alone are not enough to approach the question of how international power relations are (re)produced through media discourse about climate change. The interviews were examined for sections that refer to the questions of international relations, national perspectives or other issues related to either of those fields. Most journalists distinguished between reporting on climate change from an international or even global perspective in contrast to focusing on the national or local context. Some explained how a local focus with concrete examples can foster people's understanding of climate change. At the same time, other journalists highlighted that an international perspective on climate change in journalism is important in order to understand the context and the interconnectedness between different parts of the world. Both perspectives are analysed and discussed in the following.

8.2.1. National focus

All interviews were read carefully and analysed according to the journalists' perspectives on a national focus on climate change. The following areas were recurring topics mentioned by the journalists:

- Having a local focus in order to understand the impacts of climate change, this includes providing concrete and local examples for the abstract concept of climate change
- Having enough resources in order for local resorts to develop expertise in climate change
- Being conscious of the different target groups when writing articles about national issues in connection to climate change
- Connecting local or national coverage with questions and issues of international scope

These aspects will be analysed and discussed in the next sections and will also be considered in relation to each other.

8.2.1.1. Local focus to help understand the impacts of climate change

To start with, a couple of journalists explained how **having a local focus can help understand the impacts of climate change. This includes providing concrete and local examples for the abstract concept of climate change**. A journalist at the *Süddeutsche Zeitung* (Germany) emphasised the importance of local examples by referring to common media mechanisms and news values such as proximity and relevance (Int. GE 1). Additionally, the journalist observed that, in his view, climate change is often reported from a national – in this case German – perspective (Int. GE 1). There are, of course other perspectives, however, they seem to play a subordinate role (Int. GE 1). This perception is supported by other content analyses, for example, by Weingart, Engels and Pansegrau (2000), Carvalho and Burgess (2005), as well as Boykoff and Boykoff (2007). They all show how journalists can have a national focus in their reporting and, for example, link national or regional events to climate change. The journalist concluded that in his view climate journalism in Germany is still lacking a global perspective despite being a global phenomenon (Int. GE 1).

Apart from a perceived lack of a global perspective and a focus on national events, two other journalists highlighted the importance of providing local examples. Frederick Duodu Takyi (Ghana) illustrated why local reporting and examples are crucial: “If we really want the people to understand global climate change in our local setting, then we have to report it in a way that it may not even sound relatable in the ears of the global community but will make an impact at a local level.” Peter and Heinrichs (2005) present similar results which show how journalists try to connect abstract scientific findings with concrete experiences of their audience. Takyi continued by saying that superstitious beliefs still prevail in his community.

For this reason, he said it is important to "relate to issues in Ghana through storytelling and our oral tradition. If this were to be reported in the UK, you'll never understand it, but our education is making us think differently, and we also need the local connection because not all our people are educated in the western style". This shows that journalists need knowledge of the local culture and must adjust their reporting of this complex issue accordingly. In a way, this example demonstrates how journalists translate climate change into their national context. Similarly, Peter and Heinrichs (2005) found that some of the main techniques to contextualise climate change are a connection to current events, personalisation as well as dramatization with reference to scientific and political controversy (ibid.). This correlates with the results from the news value analysis in section 6.6. that journalists mostly try to create concrete, unambiguous news stories with a reference to a person and a concrete connection to the readers' everyday lives.

On a similar note, Sipho Kings (South Africa) explained that he always tries to take a national approach with a concrete example "and build that up and talk about the climate effects". He continued by saying that it is not only a climate change story, "it's more, this is a story about a community, and we also look at the bigger issues that are concerned".

Leonie Joubert (South Africa) said that "an aggressive focus on the local is necessary because I think what is so difficult about climate change, no matter how educated you are, is that the pollution causing the problem is invisible. It's difficult to understand the local impact of something like carbon pollution, which is invisible and yet so big." This observation by Joubert is supported by other studies. For example, Moser (2010) refers to "the temporal and often geographic distance between cause and effect" (33) as one of the challenges in climate change reporting. And while this study dates back to 2010, the observation that the impacts of greenhouse gas emissions are not immediately visible or noticeable still holds true. This then leads to a lack of perceived immediacy. Climate change can be perceived as a distant issue that must compete for attention with social and political issues that seem more pressing and immediate. So, instead of using abstract future scenarios, Moser (ibid.) suggests linking climate change to immediate national issues. Starting with easily understandable points could then facilitate the understanding of more complex correlations. Thus, several journalists in the interviews highlighted the role of concrete examples in a national or even local context. The examples can then be used to approach larger questions and issues.

8.2.1.2. Resources and target groups

Some interviewees touched upon the need of **having enough resources for local resorts to develop expertise in reporting on climate change**. This point has already been discussed in section 8.1.3. of this project. A journalist from Germany said that resources are important to cover the international and the national perspective of climate change (Int. GE 1). Here, he makes a distinction between media houses with an international reach and media houses with a more nationally focused reporting and more limited resources (Int. GE 1). Another journalist from Germany established a connection between local climate change reporting, sufficient resources and the expertise that needs to be acquired in those areas (Int. GE 2). These were the only connections made in the interviews between resources and a national focus.

Frederick Duodu Takyi (Ghana) mentioned that **being conscious of the different target groups is especially important when writing articles about national issues in connection to climate change**. While this holds true for journalistic work in general and was only brought up by one interviewee, this perspective is still worth mentioning in this context. The Ghanaian journalist said: "You have the elites and those who understand climate change, when you write in the global context. In the local context, there is a certain language that you must use […], it is important to write in a way so that the larger population can understand it." In the case of Ghana, Takyi noticed that "if it's in English, it's targeting the elite". This means that in order "to have a larger impact in the climate change conversation, we must consider our local ways of conversations. The most listened to radio and TV programmes are those in local languages, so the language and the style of reporting need to be adjusted or at least a conscious component in the journalistic process." And while this is specific to the Ghanaian context, it underlines that there is not one single approach to climate change reporting. On the contrary, every journalist needs to be conscious of their context and their audience(s). Thus, despite the question of resources, climate change reporting needs to be diversified and adjusted according to the audience to ultimately increase the level of understanding.

8.2.1.3. Connecting local coverage with international issues

Finally, a couple of journalists mentioned **connecting local or national coverage with questions and issues of international scope**. While climate change is a global issue, the impact it has varies according to location and context. What may work for one region may not work for another: "Most of Africa, in contrast to developed countries, have not made a big impact and what appears to be working perfectly in the West, may not work here. And we wonder why

that is; it's because our dynamics are not the same as compared to the developed world." (Takyi, Ghana) However, even if the contexts and practices differ, "it would be good to also learn from other places and pick best practices and try and localize it in our context", added Takyi. Following this, a Kenyan journalist said: "We have to start somewhere. You have to start more in the local stories, but then try to contextualize them in the global environment." (Int. KE 1) In the journalist's view, this connection between local reporting and a bigger global context is still a "fairly new area for most local journalists" (Int. KE 1).

Another area where a national perspective is combined with an international angle on climate change is in the reporting of international conferences such as the COP. Here, the reporting mostly focuses on a specific perspective or aspects while leaving out other (important) details. Teneal Koorts (Namibia) said: "They would say a few things about what happened there but not even in such a big scale. It's mostly like what our president said and it's not really the coverage of COP26." This, however, is a result of commonly used news values – mostly of proximity and relevance – which were already mentioned in this section 6.6. of this thesis. The news value of proximity leads to an oftentimes strong national focus on climate change according to Koorts. She continued: "It's not in a global perspective it's not a big focus." Kingsley Jeremiah (Nigeria) made a similar point and observed that at COP26 "African countries were making commitments at the UN" and then it "became a local issue, though international, because it was brought back as some sort of local issue". And even though the COP is an international conference, "this whole discussion for people in the public space is local" (Jeremiah, Nigeria). Leonie Joubert (South Africa) added: "We've just finished the COP and there has been a lot of local reporting about the global issue." Observing the climate coverage of South African media, Joubert said: "The ongoing reporting that happens through the main articles is pretty good. Sometimes it will have an international angle, sometimes it'll have a local angle. Mostly it has a local or regional angle which then will be connected with the international." The South African journalist acknowledged the challenges of this approach: "The sort of higher-level points that I make every single time is understanding how to connect the global with the local." Joubert concluded:

> I think that if journalists were to find ways to see what the local impacts are and then connect it to how South Africa then fits into the region Africa and then how we will fit into the world. There are multiple scales and there's no way around it, we just have to find effective ways to talk about it and you can do it really easily if you just do it well.

Other research studies are in line with the practical observations made especially by the African journalists. Studies have revealed a trend towards a domestication of climate change

where media outlets report on climate change according to national norms and policies (see e.g., Neverla & Schäfer 2012). To conclude, the quotes show that the issue of connecting an international with a national perspective in climate coverage is particularly interesting to journalists from different African countries. The interviewees from Germany, the UK or the US did not touch on this issue explicitly.

8.2.2. International focus

> "I think it's important to see the global perspective and […] that it affects every single person on this planet, there is no one that is not affected."
> (Teneal Koorts, Namibia)

This section explores the international perspective in climate change reporting. As previously stated, most interviewees made a distinction between reporting on climate change from an international or even a global perspective as opposed to focusing on the national or local context. The journalists mentioned the following points:

- International dynamics that also influence the reporting of climate change
    - International power structures can be reproduced through the reporting of climate change
    - Responsibility for emissions in connection to the aspect of climate justice
    - Collaboration between journalists to cover a global issue
- (Cultural) proximity as a factor for editorial choices
- International stories that are embedded in the national context
- International conferences and reports as a news peg for climate coverage

8.2.2.1. Reproduction of international dynamics through the reporting

To start with, international dynamics in general influence the reporting of climate change. This can take different shapes and can be connected to different aspects. First, **international power structures can be reproduced through the reporting of climate change**. However, at the same time, there are several studies that reveal national differences. Research thus far has uncovered "important differences in the degree of 'domestication' of climate change" (Painter & Schäfer 2018: 47). There are international variations in the degree to which different media domesticate topics relating to climate change by giving space to national narratives and frames. Previous studies have shown that climate journalism often reflects a national journalistic culture

instead of a shared global issue. Two interviewees referred to different journalistic systems that move on a spectrum between reporting, activism, and political partisanship. Frederick Duodu Takyi (Ghana) compared the Ghanaian to the American system and said that while the US has "a vibrant civil society" and journalists do not need to take on the role of activists when it comes to specific matters, the situation in Ghana is different. Takyi continued to say that "in our setting, if a journalist does not do a little bit of activism, we can't actually have an impact, meanwhile in the US the journalists leave activism to civil society". According to the Ghanaian journalist, there are different journalistic systems in which the same issue – climate change – is reported:

> What works in the US is different for us, and we shouldn't be measured by how we do our analysis and hear that we are not objective. You should rather be measured as to where you are and I want to believe strongly that developed countries have moved beyond where we have been, so there's civil society activism at a high level.

This does not only refer to the style of reporting, but also includes structures and working conditions for journalists that are different and may interfere with their reporting. Additionally, the circumstances can affect the quality of their work or even their focus and specialisation.

Ugochi Anyaka-Oluigbo (Nigeria) made a similar point and criticised the system for appreciating journalists from developing countries less than journalists from the Global North. This then also complicates their work as journalists. Additionally, in her experience, their perspectives are heard less (see also section 8.1.3.):

> I wish they would appreciate the work that journalists in Africa or in developing countries do and pay them what they're worth. […] So, I wish journalists in Nigeria, in Africa, in developing countries can get that kind of support, get jobs, get opportunities as environmental journalists. […] And then I wish for more opportunities for trainings for young journalists who want to report on the environment. There are lots of opportunities. But I mean, there could be more for young journalists who wish to report on the environment.

It is possible, now, to turn from the journalists themselves to the issues they cover: While the quote above is a personal observation by one journalist, this ties in with the observation that not all voices are heard equally in the discussion about climate policy. This implies that media mechanisms frequently favour certain voices while giving less attention to others. A British journalist said the following: "I haven't seen this so far…for example, when they were the most powerful voices at COP 26…like the Bahamian President, you know all of those voices were the most angry and powerful, I thought, but really didn't get much airplay here." (Int. UK 3) According to the journalist, it depends on the country or the person whether or not their opinion matters and whether or not it is then covered by the media. Thus, journalists do not merely

narrate what happens at climate policy conferences, but they play a crucial part in shaping the audience's perception of climate policy and thereby influence public discourse.

8.2.2.2. Responsibility for emissions in connection to the aspect of climate justice

In section 7.2.2., the frame of responsibility and the issue of climate justice have already been discussed based on the results of the content analysis and the interviews. This section enhances the debate about the issue of **responsibility for emissions and connects it to the aspect of climate justice** and its role in climate journalism. The focus is placed upon international structures in climate change reporting as referenced in research question number 3. There is a general debate about the issue of responsibility when it comes to climate change. Section 3.2.1. of the literature review already focused on aspects of climate policy. In theory, most countries agree with each other that combating climate change is "a common responsibility of all states and that states' individual responsibilities should be differentiated" (Brunnée & Streck 2013: 590). While the principle of "common but differentiated responsibilities and respective capabilities" (CBDR-RC) (UNFCCC 1992: Art. 3, paragraph 1) entails a shared responsibility for all parties, national contributions differ depending on a country's emissions and on its capability to fund solution strategies. Section 3.2.1. also focused on the distinction between developed and developing countries in this matter. Here, more and more countries have spoken out in favour of "an interpretation of CBDRC that would go beyond the simple distinction between developed and developing countries" (Brunnée & Streck 2013: 599), as outlined since early 2010 While a general distinction prevails, there is no longer a clear line between the Global North and the Global South. Instead, Brunnée & Streck (2013) refer to a "complex pattern of alliances collaborating and opposing each other depending on their particular interests, constraints, and policy priorities" (603). While this general debate directly influences the reporting, this will not be the central focus in this section. This section aims to analyse and discuss how these issues influence journalists and their reporting.

Briefly going back to the general debate about responsibility, the journalists from Ghana, Kenya, South Africa, the UK, and the US touched upon the conflict between contribution and vulnerability to climate change. In most cases, they relate it to the role of journalists as discussed in the following. For example, Frederick Duodu Takyi (Ghana) referred to this general issue and the role of journalists:

> […] because the contribution of developing countries, especially Africa, to the effects of climate change is very, very minimal. So, if you still want them to reduce it some more, then there should be some form of compromise and support. These issues must be added to the conversation. And these are issues that journalists in developing countries must also talk about because it affects the livelihood of the people.

Similarly, a Kenyan journalist at the *Daily Nation* mentioned that "the most impact is felt in the Global South in countries like Kenya" (Int. KE 1). However, when "you look at the factors that are driving this climate change, they are mostly happening elsewhere in Northern Europe and in America" (Int. KE 1). The journalist then adds that, due to this conflict, "journalists and all the media houses and institutions have a huge responsibility to draw attention to these issues so that we are talking more about climate change and also trying to mobilize the rest of the world to see this issue from our perspective" (Int. KE 1). Lynet Otieno (Kenya) made a similar point and emphasised that "we should be able to talk more about it and try to move away from reporting on politics and focus our energy and time on the climate issue because, ultimately, we are the ones who will suffer more than before, other countries started the suffering, and we feel the effects of a changing climate". Otieno concluded: "I think Africans and the rest of the Global South should focus even more on […] the issue of climate change in terms of climate action and the things that help us to survive because really it's a question of survival." These statements from the Ghanaian and the Kenyan journalists reveal a need to report more on the injustices of climate change. This entails that there is currently a perceived lack of articles that focus on these aspects: "There's quite a number of articles on climate change as a local issue, but how the developed countries are contributing to the suffering of Africa, for instance, or less developed countries as a justice issue hasn't really been a focus. […] I mean, it is being reported but it is not a prominent issue" (Otieno, Kenya).

In their statements, the journalists present their views of the status quo when it comes to the coverage of issues surrounding responsibility and climate justice. Relating this to the research question in section 8.2. about how international power relations are (re)produced through media discourse about climate change (RQ 3b), there appears to be a general consensus between the journalists from Kenya and Ghana about a lack of reporting on climate justice and international injustices. Consequently, the narratives of the Global North as the active, dominating part and the Global South, or in this case countries in Africa, as passive and subordinate are reproduced. The journalists give agency to the countries in the Global North to adjust their emissions and to also work on solving the issue of climate injustices. At the same time, they also see a responsibility for journalists in their own countries, Kenya and Ghana, to put pressure on countries in the Global North by reporting more on these issues.

The narrative of the Global North as the main contributor to greenhouse gas emissions – also historically – and the Global South as suffering the severe consequences, came up frequently in the interviews. At the same time, the interviewees emphasised a need for journalists to collaborate and to report on climate change as a global issue. Sipho Kings (South Africa) emphasised the need for "every human being in the world be it in the Global South, in the Global North" to act, because "we all have a responsibility to do the right things, take action in the right direction, so that we can serve humanity". Kings emphasised the global nature of the issue:

> Obviously, climate is a global thing […]. And it's also important like that sense of we're a global community, so when people read your stories, they know that they are part of a bigger collective. I suppose in climate, especially if you live in Canada and you have this massive per capita footprint, you need to know that you are part of this globe and you're affecting people in other parts of the world who will die because of you and your lifestyle.

Other journalists from the UK and the US take a similar approach to this issue and refer to the narrative of 'the big polluters versus the minor contributors to climate change': "If you're talking about climate politics and things that shape what's happening on the international stage, you are often focusing on what we call the big polluters. So, as journalists, we'll talk about the G7, the G20 and it's interesting to see how they align." (Gerretsen, UK) However, reporting on other countries with regard to climate change can also be more difficult in practice according to a journalist from the US: "I think that there is some hesitation. If we cover China or if we cover India or these other large emitters besides us, then there's a sense that maybe we should get our own house in order, maybe we should critique our own government before we do this sort of more international stuff." (Int. US 1) And supporting the point about the narrative of countries that play active versus passive parts in the international community, the journalist added (see also section 7.2.2.):

> When it comes to small island states, it tends to be very much like of one note, it's like, this island is sinking under the rising sea levels and I understand that angle, but I think that it also ignores how these small island nations are working to do various things to combat climate change and how they're using their voices at various summits. And so, I think that there are several different issues around the way that the US coverage looks at the international scene.
> (Int. US 1)

This shows that apart from historic responsibilities this interviewee sees a need to focus on the international aspects of climate change. Similarly, John Schwartz (US) emphasised that "every publication needs to focus on the international effects, the Global South". Schwartz then added that while he is "not a fan of directing a story to have to make a political statement", he still

feels that "good journalism brings people to a greater understanding whether it's by enhancing people's empathy or showing them that they're in trouble if they don't act". Thus, journalists and the media in general are attributed a mediating role in the international debate about climate change which is also connected to the issue of climate justice.

8.2.2.3. Collaboration between journalists to cover a global issue

The principle of "common but differentiated responsibilities and respective capabilities" (CBDR-RC) (UNFCCC 1992: Art. 3, paragraph 1) entails a shared responsibility for all parties. Similarly, a couple of journalists touched upon collaboration between journalists to cover the global issue of climate change. And while Hallin and Mancini (2004) established the close connection between national political systems, media systems and journalism in their study, some interviewees suggested a collaboration across national borders. So, instead of reporting on climate change differently in national contexts, they wish for a more international approach (Hallin & Mancini 2004).

A German journalist at the *Süddeutsche Zeitung* emphasised that the issue of climate change cannot be solved by one country alone. In this context, he suggested stronger collaboration between journalists. He stated that there is a dilemma in climate journalism similar to climate policy: National reductions are not sufficient to cut global greenhouse gas emissions which is why the view needs to be broadened to a more international, or even global, perspective. Similarly, a national lens on climate change in the media cannot illustrate the complexity and the severity of the situation (Int. GE 2). The journalist focused on the journalistic product and the way in which climate change is reported.

Adding to this point, a journalist from Kenya working for the *Daily Nation* looked at the systemic level. The journalist started by acknowledging the global nature of the issue and added that it needs to be approached as such:

> What I was trying to explain is that climate change reporting in Kenya and the region is a fairly new area and we are still trying to cover more stories. From how I look at it is that being a new area for us […] but, of course, I have the understanding that it's a global issue that needs to be addressed in a global approach, as a journalist in our local or regional media house.
> (Int. KE 1)

The Kenyan journalist then continued to express his wish for journalists to share their techniques and expertise to improve climate change reporting:

> I think I have a lot more to learn from journalists from across the world and to tell stories in a more global approach, but then try to contextualize them in a global environment. So, for me it's more about learning how it's being done elsewhere and trying to translate that here by telling truthful stories.
> (Int. KE 1)

The journalist expressed a wish to learn from and collaborate with other journalists. In doing so, he implies that there is an ideal way to report on climate change and that there are journalists who have all the expertise.

Looking at the other interviews, the topic of collaboration between journalists from different countries has not been brought up frequently. Instead, the interviewees focused more on their national contexts. Thus, climate journalism may be improved through collaboration,that said, however, only one concrete initiative was mentioned in the interviews: Sipho Kings talked about the initiative of *Covering Climate Now* (see section 8.1.3.).

8.2.2.4. (Cultural) proximity as a factor for editorial choices

The news value of (cultural) proximity has already been discussed in section 6.6. of this thesis. This section focuses on the relevance that (cultural) proximity can have for editorial choices. The news value of "proximity" appears to be one of the most commonly applied news values in climate change reporting. As analysed in section 6.6., limited resources within the newsroom demand a prioritisation of issues. Limited resources within the newsroom require journalists to priorities their time and the issues they cover. The news value of "proximity" is important because journalists decide what to focus on depending on a perceived proximity and a relevance for their audience.

A journalist working at the *Süddeutsche Zeitung* said that in international coverage it is preferred to have a journalist on-site. This, however, is not always possible due to limited resources. According to the journalist, the allocation of resources is often influenced by the criteria of relevance and proximity for the readers (Int. GE 2). He then continued to speculate that the readers are more interested to read something about an event that is happening close by, than about something that is happening, for example, in the Philippines (Int. GE 2). Another German journalist observed that there is still only a minor focus on climate issues in areas that do not have a high level of (cultural) proximity to the readers (Int. GE 1). Only occasionally natural disaster or extreme weather events in other parts of the world can generate media attention (Int. GE 1). The journalist called this kind of reporting "exotic reporting" (Int. GE 1). This shows how the journalist separates countries into different categories – ones that are close or similar to the home country and ones that are perceived as "exotic".

These observations from the interviews can be connected to the theoretical foundation of this thesis (see chapter 4). The influence that (cultural) proximity has on editorial choices can be analysed using Edward Said's concept of 'Othering' and other parts of his book *Orientalism*. In the discussion that followed Said's (1978) influential work, connections between the representation of 'the Other', the circulation of that institutionalised knowledge along with underlying power dynamics were made. With reference to the works of Gramsci (1971) and Foucault (1994), Said (1978) was able to show how the dominant narrative of 'the West' introduced a discourse of Orientalism that consistently describes 'the East' as inferior, deviating from what is perceived as 'the norm'. His work has inspired postcolonial research and contributed to the theorisation of representation in public discourse and also journalism (see theory section 4.3.2.). This conceptualisation can also be applied to this study.

The general issues addressed in *Orientalism* refer to the representation of other cultures and societies and the relationship between power and knowledge with regard to intellectual and methodological questions (see also Said 1985). For example, the statement by the German journalist about "exotic reporting" (Int. GE 1) hints at what Said (1985) describes as "ideological suppositions, images, and fantasies" (90). Thus, it could be argued that the label of "exotic" (Int. GE 1) is connected to "ideologies of Western imperialism" (Said 1985: 101). Additionally, it creates a notion of 'we' and the more 'foreign countries' in other parts of the world. When it comes to climate change, a distinction in the media between 'us' and 'them' can skew the perception of the global nature of the issue.

8.2.2.5. International stories embedded in the national context

In the above section, it has already been analysed that the factor of proximity can influence editorial choices. Often, this influence leads to a focus on national issues. Some journalists explained that the national context can be used to integrate international stories and thereby make them more interesting to the reader. In this way, complex stories and connections are embedded in a national, smaller, simpler context. Leonie Joubert (South Africa) described this synergy between national coverage and an international issue as follows:

> It requires understanding that there are multiple factors working together to leave one community very vulnerable. Now imagine as a journalist you have to understand local level flooding, local level fire, local level heat waves. Each one of these is a local story that embeds itself in the international context.

Joubert emphasised how important it is to know "how to connect the global with the local". Similarly, Yokany Oliveira (Namibia) observed that it is "framed as both" because "the issue is in Namibia, but it's also an international issue". This can, however, present a practical challenge. Section 3.3.5. of the literature review showed how climate change reporting can be used to explore the concept of global journalism (see e.g., Berglez 2008, Berglez 2011). Journalism emerged with the development of the nation-state about 200 years ago (Olausson & Berglez 2014). Consequently, the focus on the nation-state became an ideological framework and norm within the journalistic practice (Berglez & Olausson 2011). Since then, there has been a separation between national and international reporting only partly resolved by global news services (Olausson & Berglez 2014). This conceptualization, however, can be problematic for climate change reporting as it exceeds national borders and presents itself as a global challenge (see e.g., Beck 1992).

Having established the importance and difficulty of embedding international issues in a national context, the practical realisation can often be more complicated. A German journalist at the *Süddeutsche Zeitung* as well as John Schwartz (US) both touched upon the issue of resources and staff capacity. Climate change encompasses a number of issues and stretches across the globe. For this reason, international coverage can present a logistical challenge to newsrooms. One issue is reporting on events taking place in regions far away from the offices. With national stories it is easier to establish a direct connection by reporting from the place itself (Richter, Germany). Schwartz (US) stressed this challenge and said, "You can write that story without going there, but the fact that she [Somini Sengupta, correspondent for The New York Times] travels the world for The Times and shows people in their homes with the water up to their ankles, you know, that vividness drives the message home to people". In his statement, Schwartz connects the practical challenge of reporting from different places around the world, with the benefits of showing the readers the realities of climate change in other countries.

Isabelle Gerretsen (UK) observed that some international events are worth reporting because they have "global significance, not just because we are experiencing extreme weather everywhere but also because it's all about the debate of how much money should go towards countries facing these types of events afterwards". Gerretsen added that it is "quite rare to find a climate story that doesn't have that kind of global significance", which then again is connected to limited resources that do not allow journalists to cover every event that may be important in the global context of climate change.

And while several journalists speculated about reasons why the coverage is mostly nationally focused – either due to limited resources or lacking skills – one American journalist mentioned a more straight forward reason: "If you have an editor who just is not a big fan of international coverage […] sometimes it can be as simple as that […], which I personally disagree with because I think climate change is a super international issue and if we're not covering those things we're missing a huge component of the problem in the story." (Int. US 1) But even a local story can have a global impact according to Gerretsen (UK): "I think it shows how sometimes you shouldn't underestimate how a local story can have a real global impact and be of real global interest, but you have to identify the angle that is interesting to your audience."

To conclude this section from a theoretical perspective, already in 2007, Berglez urged for an "everyday routine to investigate how people and their actions, practices, problems, life conditions, etc., in different parts of the world are interrelated" (151). In this sense, Olausson and Berglez (2014) present the idea that climate change reporting can, to some extent, be regarded as a "forerunner in the development of high-quality journalism in general" (260). In order to make it more appealing for media companies, the authors hint at the long-term benefits of adjusting to an emerging "global logic of social reality" (ibid.) (see also Olausson 2013b).

8.2.2.6. International conferences and reports as news pegs

The previous section focused on how international stories can be embedded in a national context. Several journalists observed that international conferences are a common news peg for including the international context of climate change and climate policy in particular. Sections 6.4. and 6.6. already showed that international conferences are events that increase media attention on climate change. International dynamics are influenced by the introduction of official international treaties and agreements. Here, the media present a key player in interpreting official resolutions and sharing information on climate policy debates with the public. Painter and Schäfer (2018) already found that "*media coverage is strongly event-driven and episodic, and that it focuses on similar events across countries*" (44, emphasis in original). Several studies (see e.g., Eide, Kunelius & Kumpu 2010, Schmidt, Ivanova & Schäfer 2013) support this observation and confirm that peaks in media coverage are frequently caused by particularly anticipated or controversial COPs or the publication of new IPCC Assessment Reports.

The interviewees support the findings from the content analysis: Climate change reporting is mostly approached from a national angle and the framing is oftentimes episodic.

There is a heightened issue attention and a more international focus when international conferences take place or when international reports are published. Catherine Early, an environmental journalist from the UK, said:

> Reporting on climate change is mostly national. The mainstream media will report on stuff that is happening either in other countries but only when it's affecting that other country at the current time, like the fire that's happening or the flood or whatever, rather than looking at the bigger picture. But with COP, this was obviously looked at more internationally. So, I think it depends on what is going on.

Similarly, this form of episodic framing has also been observed by Leonie Joubert (South Africa). Joubert said that especially the COPs are commonly used news pegs: "Sometimes it will have an international angle, sometimes it'll have a local angle. Mostly it has a local or regional angle which then will be connected with the international." Sipho Kings (South Africa) supported this observation and added: "We need media attention on climate change that stays the same and not only goes up when there is, like, a political conference." Tagbo (2010) confirmed in her study that international events organised, for example, by the UNFCCC are more likely to drive media attention in South Africa and Nigeria compared to the coverage of local events. For example, in her analysis of two South African newspapers, Tagbo (ibid.) found that "[t]he majority of the articles in The Star were tied to the international events and taken mainly from the Reuters news agency" (27) and similarly, "[m]ore than 70 per cent of the Mail & Guardian articles were tied to international events with neither South African nor an African background" (ibid.).

Teneal Koorts (Namibia) added that even though the COPs are international events she thinks that journalists still have a national perspective: "They would say a few things about what happened there but also not even in such a big scale. It's mostly like what our president said and it's not like the coverage of COP26." (see also section 8.2.1.3.) Koorts then continued to evaluate on possible reasons for this procedure in the media and added: "My boss said, a few years ago it was taking place somewhere close by and there was a lot of engagement about it. But this year [2021] when it was further away, it was barely reported on, there were only two or three articles. So, there is no global perspective, but it's not a big focus." This adds another point to the discussion: Not every COP automatically increases media attention for climate change in every country to a similar degree. Instead, location and agenda are both factors that can either increase media attention or not.

Apart from a heightened media attention for the international aspect of climate change during a conference, some interviewees still observed a strong national focus. One example that

comes up repeatedly is the US. One journalist from the US said that "it's almost like a blinkered sort of perspective on climate change […], there is a very, very strong national focus" (Int. US 1). The journalist added that "the US has been historically very bad at addressing climate change" (Int. US 1). She then concluded:

> The only times that I think most outlets in the US cover international climate news is related to IPCC reports or when the Conference of the Parties happens. It's like suddenly everyone cares about international climate related things, and then it only lasts for like three to four weeks and then it goes back.

This section shows that across countries and even continents, international conferences, mostly the COPs, are perceived as important events within the news cycle. International conferences are commonly used news peg for focusing on the international context of climate change and climate policy in particular. The "issue-cycles" are synchronised across countries during international climate conferences with an increase in media attention. The focus is, nonetheless, predominantly on national issues and the impacts on national climate policy. The interviewees miss a global perspective. Relating the findings to research question 3b, international power relations are barely reproduced in the reporting of international conferences, because even in this matter the reporting presents a strong national focus.

8.3. Summary of the three analysis chapters

At the core of this dissertation are three analysis chapters each with a specific focus and research question. As stated in the introduction to the analysis chapters (see section 6.1.), the analysis and discussion is not separated but rather combined to allow for a natural flow of thoughts.

The first research question addresses the main issues that are reported in the articles (chapter 6). Despite the differences between the selected countries in size, location, media landscapes, contribution and vulnerability to climate change, national politics dominates the climate coverage in most countries. Kenya and Namibia have a strong focus on agriculture including economic and environmental aspects (see section 6.4.). Section 6.5. adds another aspect by revealing that even though all articles focus on climate change at least to a certain degree, climate change is not always the sole focus in the articles. Instead, it is often a secondary issue.

The quantitative content analysis together with the findings from the interviews reveal that journalists aim to write concrete, unambiguous news stories with a reference to a person and a concrete connection to the readers' everyday lives (RQ 1b). Thus, climate change

reporting has a strong national and sometimes even local focus while climate change itself remains a global issue. These storytelling techniques are nothing new when it comes to news value analysis, however, it is interesting to see that climate change conforms with this news telling convention of relating abstract information to concrete events and stories. So, when it comes to climate change reporting, the approach of telling concrete stories with a connection to the readers' everyday lives is a practice used in all selected countries. The news stories themselves are, nonetheless, quite narrowly focused on national issues contradicting the global nature of the issue of climate change itself.

In chapter 7, the small number of frames related to climate change from an international perspective (cooperation, responsibility, conflict) suggests that – similar to the results from the news value analysis – climate coverage has a strong national focus, mostly on politics or the economy (RQ 2). This observation links to this project's hypothesis which suggests that climate change reporting in all selected countries has a mostly national focus. All news websites mainly refer to the country or continent they are located in and where their audience is predominantly based. References from other countries come up less frequently.

Chapter 8 looks at the issues and challenges in climate change reporting and relates them to international (power) dynamics. The issues that appear to be most common and in multiple countries are on a structural level and include a "lack of knowledge / training", followed by a "lack of resources" and "climate literacy" on an operational level. The first two issues are intertwined and can influence other challenges. Having enough resources to properly train journalists to report on climate change issues could potentially enhance media coverage, create more links to climate change within news stories and eventually increase climate literacy within a society and expertise among journalists. The results from section 8.1. can be summarised in a simple yet meaningful graph:

Figure 4: Increasing climate literacy

The graph illustrates the process of increasing climate literacy initiated by having more resources and summarises the results from section 8.1. from a solution-oriented point of view. Operational issues (see section 8.1.1.) especially can be approached by individual journalist, structural issues (see section 8.1.2.) require "management attention and/or financial investments

to be overcome" (Blau 2022). Issues on a societal level (see section 8.1.3.) are much harder to overcome. This all relates to research question 3a which looks at the issues and challenges of climate change reporting. And while some challenges are specific to a country or region (see sections 8.1.1. – 8.1.6.), this graph is applicable to all countries that are included in this project and (in all probability) beyond.

Section 8.2. moves from the concrete, mostly national level, to a more abstract, international one (see sections 8.2.1. – 8.2.2.6.). The sub-sections investigate how international power relations are (re)produced through media discourse about climate change in the selected countries (RQ 3b). Most journalists distinguished between reporting on climate change from an international or even global perspective as opposed to a national or local one. On the one side, a local focus can foster people's understanding of climate change by giving concrete examples; on the other side, an international perspective helps to understand the context and the interconnectedness between different parts of the world. Journalists transfer aspects of climate change to their national context. The space media give to national narratives and frames varies. The (level of) coverage depends on the news story and whether or not the country or the person involved matters in their judgement. Thus, journalists do not merely narrate what happens at climate policy conferences, but they play a crucial part in shaping the audience's perception of climate policy and thereby influence public discourse.

There appears to be a general consensus between the journalists from Kenya and Ghana about a lack of reporting on climate justice and international injustices. Consequently, the narratives of the Global North as the active, dominating part and the Global South, or in this case countries in Africa, as passive and subordinate are reproduced. Apart from current and historic responsibilities, a couple of interviewees see a need to focus more on the international aspects of climate change. The interviewees support the findings from the content analysis: The reporting on climate change is perceived as mostly national. The framing is oftentimes episodic with heightened issue attention when international conferences take place. This means that media report on these issues but are not always actively joining "up the wider dots or following through on the lasting consequences" (Reuters 2023). International power relations are mostly only reproduced indirectly through a conscious or unconscious focus on specific voices and regions, and even the reporting of international conferences presents a strong national focus.

The summary of the three analysis chapters proceeds to the conclusion chapter which summarises the entire dissertation, presents the original contribution to knowledge and provides an outlook for possible future studies in this research field.

9. Conclusion

9.1. Concluding summary

This final chapter serves both as a summary and a reflection on the research process and offers a look into the future. The process of writing a doctoral thesis is a rare opportunity to engage with a topic for a good amount of time. At the start of this research process in mid-2020, we had just emerged from the first COVID-lockdown – and were heading towards the next one. The pandemic was widely perceived as the most pressing issue at that time. Yet only a year before, when the idea of this PhD project had begun to take shape, climate change was an issue that was high on the public and the media agenda. More and more media companies started to establish designated climate beats, reflected on the language to describe the crisis, and created networks to collaborate with journalists from other countries. Fast forward three years to mid-2023 and we have mostly overcome the COVID-19 pandemic, two COPs were held, and more than a year ago, in February 20222, Russia invaded Ukraine. In the comparably small window of three years, one crisis was overcome and others started. Yet the climate crisis continues to preoccupy us and unfolds day by day. The motivation for this project stemmed from a personal urge to contribute – if only on a small scale – to finding ways to mitigate the crisis. The profession of journalism plays a central part and can hopefully use its reach and relevance to communicate the urgency of the situation and continue to raise awareness.

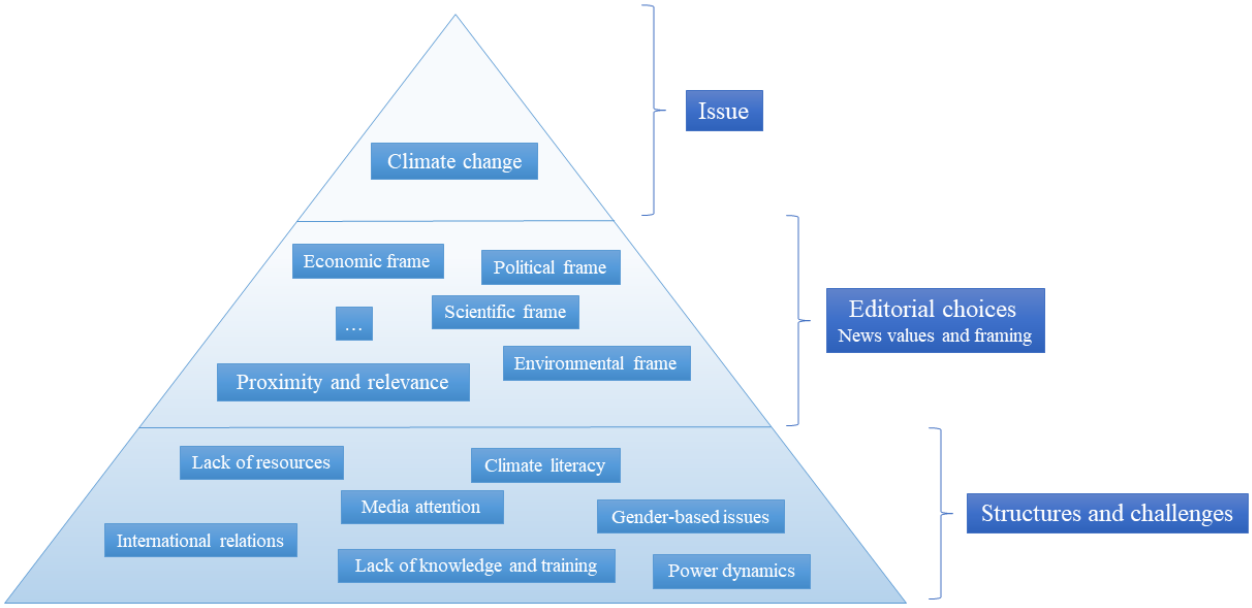
The aim of this research project was to investigate how a global issue is reported in different national contexts and how international dynamics play into this. Climate change is no longer just a scientific concept, but has become a nuanced and widely debated issue, especially in the international context. International injustices are part of the debate about climate change, with a – now rather outdated – division between countries into those who have mainly contributed to rising greenhouse gas emissions and those who are suffering the consequences of a heated climate. In 1992, the UN introduced the principle of “common but differentiated responsibilities and respective capabilities”, (CBDR-RC) (UNFCCC 1992: Art. 3, paragraph 1) which entails a shared responsibility for all parties, and varies depending on a country’s emissions and on its capability to fund solution strategies. While this division simplifies complex international dynamics and the different individual realities of each country, this study aimed to move beyond the no longer appropriate narrative of active (or contributing) and passive (or suffering) countries. The eight selected countries all present a range of different levels of contribution to global greenhouse gas emissions and different levels of vulnerability

to the impacts of climate change (see section 5.2.1.). Each of them was analysed individually and then compared to the others to prevent the reproduction of a biased dichotomy. By letting go of a simplified categorisation, the analysis was open to gaining more nuanced insights instead of following certain narratives.

The starting point for this research was the following hypothesis: Climate change is not reported as a global issue, but instead different news values and national frames are used in each country, and these are influenced by structural challenges and underlying international (power) dynamics. Here, climate change reporting is the dependent variable, which was tested and measured, and the national media outlets function as the independent variable which were changed and controlled to investigate possible changes in the dependent variable. Building on the insights gained by answering the research questions, this hypothesis could be verified, and climate change is (mostly) embedded and framed in a national context. Referring to the literature review in chapter 3, Neverla and Schäfer (2012) revealed a similar trend towards a domestication of climate change where media outlets report about climate change according to national norms and policies. This shows that this trend has continued further.

The originality of this project lies in the analysis of climate reporting from an international perspective that does not only consider the content of the articles, but also includes the underlying layers influencing editorial choices, partly form a postcolonial-critical perspective. The different layers of climate change reporting are summarised in the following graph. The graph shows how this research moved from the surface or the tip of the iceberg, to the editorial choices and the way in which the issue is reported, and finally, to the underlying structural issues and challenges that may have led to these choices.

Figure 5: The layers of climate change reporting



The graph summarises the most important aspects that were uncovered in the analysis. In a condensed form, the graph illustrates the different layers that are involved in the reporting of climate change and the complex issues that influence this process on a deeper level.

In reality, editors, and newsroom staff can encounter different challenges when covering climate change. If an editor aspires to improve the coverage of climate change, he or she has to start by looking at the underlying structures as shown at the bottom of the pyramid. Without targeting these issues first, it can be difficult to create lasting changes. This could, for example, entail providing the necessary training resources for journalists to really engage with the complex issue and thereby improve the quality of their reporting piece by piece. On a larger scale, it could mean having more resources for 'the media' in general, as stated by Frederick Duodu Takyi (Ghana): "Until we aren't able to convince the people to invest in the media so that the media can be independent, we have a long way to go. Real press freedom is actually economic freedom. If the journalists can have economic freedom, we can have press freedom." In line with this, Sharon Willis Brown-Acquah (Ghana) referred to journalism as a profession that has the potential to change even larger structures: "The journalists can come and set an agenda, put pressure on our leaders and change this situation." To conclude this point, Lynet Otieno (Kenya) emphasised the role of journalism: "We have a bigger role to play because the people listen to us and look up to us for information." Thus, journalists and editors do not need to succumb to these structures and simply work within them. Instead, they can learn to become more conscious about the way in which they frame climate change and which news values they apply in their selection process. Schäfer and Painter (2020) support this impression in their

study: “It demonstrates that the range of roles available to climate journalists has diversified, with a shift from ‘gatekeeping’ to ‘curating’ roles.” (ibid: 1)

On 10 January 2023, the *Reuters Institute for the Study of Journalism* at the *University of Oxford* published their research on “Journalism, media, and technology trends and predictions 2023” (Newman 2023). The fourth section focuses on “Step change in news media’s coverage of the climate emergency” (ibid.). Through a survey of 303 media leaders in 53 countries, the study revealed some of the changes that the news organisations are making to improve climate coverage further (ibid.). This includes creating a climate team to raise profile (49%) and implementing measures to ensure that climate is considered by all beats (44%) (ibid.). Only 23% of the media leaders improved training for staff on climate reporting to increase awareness (ibid.). This connects to the graph in section 8.3. which showed how solving one issue can initiate a chain reaction and thereby, affect other issues, as well. Allocating more resources to climate journalism could be a starting point to providing better training for journalists, increase media coverage, and ultimately raise awareness and levels of climate literacy within the public – which vary across regions.

The pyramid above illustrates how in this research design the research questions built on each other. Chapter 6 showed how climate change is approached from various different angles, from a political to an economic to a scientific one. As a cross-cutting issue, climate change is reported in connection to other events. This also means that climate change is not always the sole focus in the articles. Instead, it is often a secondary issue (see section 6.5.). Additionally, this study highlights how climate change reporting has a strong national and sometimes even local focus while remaining an issue of global scale. In contradiction to the familiar ‘Africa is a country’ trope, the research reveals, amongst other things, the extent to which climate change reporting in Africa, as elsewhere, covers a global issue but is reported through a national lens. The approach of telling concrete stories with a connection to the readers’ everyday lives is a practice used in all selected countries, while the news stories themselves are focused on national issues, partly omitting the global nature of the issue. On the one hand, a local focus can foster people’s understanding of climate change by giving concrete examples; on the other hand, an international perspective helps to understand the context and the interconnectedness between different parts of the world. International (power) relations are for the most part only reproduced indirectly through a conscious or unconscious focus on specific voices and regions, and even the reporting of international conferences presents a strong national focus. This is not uncommon for topics in the news, nor in the way news is framed in general.

9.2. Contributions to the literature

This project has sought to offer an original contribution to knowledge in the field of journalism studies. In order to ensure this, chapter 3 presented an extensive literature review to map the field and highlight the research gap where this study fits in. The research field of climate change communication still has some interesting areas to explore further – especially using an interdisciplinary approach of journalism and cultural studies. Referring back to the literature review, this study considered different parameters to create an original research design and contribute to the literature: geographical focus, media outlets and case selection, as well as the use of a postcolonial perspective.

First, Schäfer and Painter (2020) conducted an advanced review of the research field and found an imbalance in the geographical focus where most studies "come from, and focus on, countries from the Global North, particularly the Anglosphere" (4). The point that most studies are published by researchers from institutions within the Global North also applies in this study. However, this project tried to move beyond this, and thus, consciously investigated climate change reporting in a more diverse range of countries which partly have not been the focus of many studies before. The study reveals that the selected countries report on climate change in the large from a national perspective, led by the common news values of relevance and proximity. Within the national context, however, climate change is a cross-cutting issue spanning across different beats from politics to economy – including agriculture and the energy sector – and to environment and science. Hereby, the level of vulnerability or the location of the country does not necessarily need to influence the media focus. On the contrary, the reporting takes on a predominantly national perspective and is sometimes quite narrowly focused on national events and issues. International events are reported on episodically when international conferences take place.

In addition to this, the distinction between 'active' countries who contribute to the rising greenhouse gas emissions and 'passive' countries that are vulnerable to the impacts of climate change is no longer a reflection of reality. Instead, the simplified classification does not do justice to the complex world that we live in today. Figure 20 in section 5.2.1. illustrates how the categories of contribution and vulnerability range along a scale. Referring back to Okoliko and de Wit (2020a), "very few studies have examined media(ted) CCC in the African context" (80) and "general growth in terms of research output has slowed since 2013" (ibid.) (see section 4.4.1.). This study includes five African countries: Ghana, Kenya, Namibia, Nigeria, and South Africa. Thus, with the classification between 'active' and 'passive' countries dissolving, this study contributes to broadening the focus further within the African context.

Second, this study analyses climate coverage on news websites. Schäfer and Schlichting (2014) confirm in their meta-analysis that print media accounted for more than two-thirds of all studies in climate change communication until 2010, with a decreasing tendency. Here, this study follows the current trend of including online media, but no social media networks.

Thirdly, comparative media studies can help understand international dynamics in climate journalism because, as a global phenomenon, it affects societies all over the world. Especially when comparing national media coverage between countries in Europe and former colonial regions in Africa, it is crucial to refer to the journalistic system as part of a larger power structure introduced through historical relationships of domination and resistance. This research project used a postcolonial lens in the analysis in order to be more receptive for a potential reproduction of institutionalised knowledge and techniques of othering that may underlie climate change reporting in different countries. Without addressing the topic specifically in the interviews, journalists from the African continent recognised postcolonial dynamics; journalists from Northern countries were oftentimes conscious of the issue of climate justice. And, as Frederick Duodu Takyi (Ghana) said in his interview, "We have to convince international organisations to understand it [climate journalism] in our context, so that they do not measure us by the standards in the global environment, but by the standards that will work in our local environment". This approach is specifically relevant as journalism can function as a soft power in international relations also influencing debates about responsibility, collaboration, and justice within the debate about mitigating the climate crisis.

This research has – among other aspects – investigated the structural challenges in the reporting of climate change. It has systematically analysed climate coverage along with interviews from journalists who actually report on the issue. The identified challenges can then be approached to improve and extend climate coverage. The international network *Covering Climate Now* created a list of best practices for climate journalism which – for a large part – match the findings of this research. The list includes (but is not limited to) the following points: First, the article emphasises the importance to "know your audience" (CCNOW 2023) which means that journalists need to understand "audiences' beliefs and feelings about climate change […] to deliver stories that resonate and build trust" (ibid.). Second, more journalists need to "make the climate connection" (ibid.) which transfers to the issue that often news stories have no apparent link to climate change in this research (see section 8.1.2.). Another best practice is to "remember, climate is a story for every beat" (ibid.), meaning that "good journalism […] must not restrict climate coverage to the science and weather beats" (ibid.). Furthermore, journalists need to "humanize and localize the story" (ibid.) which is also referred to in this

study (see section 7.2.1.1.). Additionally, in the current debate about climate change, articles should also “center climate justice” (ibid.), which again is a concept that is also part of this research (see section 8.2.2.2.). Lastly, CCN advises to “know the science, but talk like a real person” (ibid.), which corresponds to providing proper training to journalists so that they are aware that using “accurate but simple and clear language is most likely to connect with audiences” (ibid.).

This research contributes to the question of how to improve climate journalism by identifying structural challenges and issues and relating them to the larger context of international relations. Similar to climate change itself, climate coverage appears differently in different national contexts. Thus, the (structural) challenges also vary between countries and continents. On the one side, it is useful to summarise challenges or, in turn, best practices in concrete categories; on the other side, these categories need to leave room for different interpretations in national contexts depending on the vulnerability to and contribution to climate change. This project contributes to the currently emerging discussion of approaching climate journalism from a critical perspective and relating it to international (power) structures.

9.3. Researcher reflections and limitations

This study focused on climate change reporting as a global issue. From there, it looked into how the issue is approached in different national contexts paying special attention to underlying international dynamics and structural challenges. For various reasons outlined throughout the thesis, the content analysis included a small group of countries within a limited period of observation. A more full-field analysis would benefit from the inclusion of more views not only from journalists but also from editors and the creators of networks for environmental journalists at a national and international level. Additionally, more countries could have been included in the research sample. This, however, was not feasible for this project; it was consciously decided to prioritise depth of analysis rather than including more countries. This meant, for example, that the US was not given the attention it deserves and only *The New York Times* was included to account for a more international publication. Additionally, the study only included two news websites per country, but with a wide reach within each country. So, instead of looking at a higher number of countries or news websites, it was decided that the trade-off was worth making.

This project presented an analysis of climate reporting in selected countries, while also including theories from journalism and communication studies as well as postcolonial studies.

The study set out to produce relevant research that is sensitive to the different national contexts. The research paradigm was informed by critical and postcolonial theory to create space for understanding different realities and, ultimately, for creating new knowledge that should not be led by normative assumptions. However, this thesis did not address some of the more philosophical issues surrounding epistemic justice. Chapters 3 and 4 touched on the debate surrounding epistemic justice; it would always benefit from further research into the philosophical aspects, though this was beyond the scope of this research. The study did not attempt to conceptualise global news flows and how they influence climate reporting. Instead, some of the thoughts could pose as a possible starting point to look more closely at international news flows of climate reporting.

At the outset, the hypothesis assumed that climate change reporting in all selected countries has a mostly national focus. The study results provided a clear answer to this hypothesis which then led to careful reflection of the research process. The hypothesis helped to support the research process and assisted in not subconsciously pushing it in a certain direction. This was supported by having a strong focus on interviews with journalists to talk about their experiences. While the interviews were analysed and used in different chapters, the interviewees were not quoted out of context for the purpose of ensuring a clear depiction of their experiences.

This study examined the news product (content in form of articles) without also examining modes of production and/or consumption (audience reception) in detail. The journalists provided some insights into the production and the reception processes during the interviews. This ties in with questions for future research which will be addressed in the next section.

Lastly, the role of the researcher can also be considered a potential limitation. Section 1.4. of the introduction already addressed the positionality of the researcher. At this point, it remains to say that another researcher may have interpreted the data collected differently. This, however, is an inevitable factor in this kind of research and every researcher has different levels of prior knowledge and approaches. In order to minimise this, the research builds on a mixed methods approach in which the analysis was not solely based on qualitative interpretation but also on quantitative data.

9.4. Questions for future research

This project never had the intention of covering all aspects relating to climate change communication from an international perspective – this would have exceeded the scope of a doctoral thesis. The research still managed to bring light to a specific part of this field; other areas could be explored in future studies. In some cases, this research only functions as a starting point from which other interesting fields could be explored. Some examples for future research are addressed in this section.

Climate change communication is a fast-moving research field with potential for several interesting research questions. Diversifying the research objects is particularly important due to the global nature of the issue and the different journalistic systems. In reference to chapter 3, it can be noted that Scoville-Simonds (2018) demands an inclusion of perspectives beyond "the scientific worldview that dominates climate debates" (357) to support local initiatives and ideas relating epistemic justice to climate justice. Okoliko and de Wit (2020a) make a similar suggestion and stress the importance "to account for diversity in the media(ted) CCC [climate change communication] field as it relates to the African context" (67). While addressing this issue, this research project can only account for a small part of the African context. Okoliko and de Wit (ibid.) argue that an underrepresentation of African research in the global field of climate change reporting "may not be unrelated to trends in the dynamics of global knowledge creation" (78). This leaves space for future research which could place greater attention on furthering "inclusive epistemic justice in the global knowledge economy" (ibid: 79; see also Scoville-Simonds 2018).

The research design of this study is composed of a quantitative content analysis and semi-structured interviews with journalists. The design could be replicated on a larger scale, with different countries or different selection criteria for the sources of media content; coupling these data with a theoretical framework of journalism and postcolonial studies remains relevant for future research. For example, future studies could look more closely into social media platforms and investigate how they have changed the field (see e.g., Nielsen & Ganter 2018). Possible future analyses could also aim to overcome the limitations of the study at hand: Even though it included eight countries, the samples can only give an impression of the coverage and it would be interesting to additionally include social media platforms or extend the period of observation.

Furthermore, future studies could use a similar research object consisting of countries ranging along the scale of high contribution to high vulnerability to climate change but take a different perspective. One possibility would be to look at climate change reporting from the

perspective of the media audiences and go more into the direction of reception studies. For example, one interesting insight from this research was that Namibia and Ghana are the only two countries that have a higher share of good news stories compared to stories containing bad news. All other websites include more bad news in their articles. This underlines how one issue can be approached from different sides and, following on from this, how this may influence the public's perception of climate change. Future studies could focus on the public's perception of climate change and how negative or positive messages affect their views. So, instead of looking at the content and the journalists' perspectives that produce the content, future studies could focus more on the audiences, using the method of surveys or focus groups.

Finally, future studies could look at international initiatives, networks and organisations that work on creating a more international, cooperative way of reporting on climate change. In the interviews, a couple of journalists touched upon a lack of cooperation across national borders and expressed a wish to have more training opportunities together with other environmental journalists from different countries. For example, Sipho Kings (South Africa) encouraged *Mail & Guardian* to join the global climate reporting network *Covering Climate Now* in 2019. In a comment, he explained this decision: "To better cover the climate crisis, […] the *Mail & Guardian* will publish stories about the climate crisis from around the world. This is journalism that comes from *Covering Climate Now*, a network of more than 300 publications that are committed to covering the climate crisis." (Kings 2019b) Another interesting initiative to keep in mind is the *Oxford Climate Journalism Network* (OCJN) which "works with a global community of reporters and editors across platforms and beats to improve the quality, understanding and impact of climate coverage around the world" (Reuters Institute n.y.). In addition to international networks, a couple of journalists also mentioned non-profit journalism in the context of climate change. For example, John Schwartz (US) referred to this model: "Another great idea is non-profit journalism organisations that cover climate whose work can then be shared. […] So, there have got to be new models, too." Future studies could investigate how such initiatives can potentially help journalists develop their coverage of climate change and how the model of non-profit journalism could fit into that.

Generally speaking, taking an intercultural approach to international journalistic practice can generate interesting research insights. Moreover, it contributes to creating a (research) practice that is more reflective and, ideally, less othering by not including preconceived assumptions about what is considered 'the norm'. This approach is not limited to the analysis of climate change reporting but can be applied to many different issues.

9.5. Closing remarks

> "How many full moons do you have in 10 years? How many birthdays do you have in 10 years? How many times are you going to experience XY or Z? It's not very much time at all. So, I ask myself: How am I going to be most effective in the next 10 years? And not give up hope."
> (Leonie Joubert, South Africa)

The perception of time is closely linked to the debate about climate change. Climate change exceeds temporal and spatial boundaries making it difficult to grasp the urgency in the present to then soften the impacts in the future. Almost ten years ago, world leaders at the UN Climate Change Conference (COP21) in Paris reached a breakthrough, the Paris Agreement, "a durable framework guiding the global effort for decades to come" (UN n.y. b). In this context, Leonie Joubert (South Africa) said that 10 years "is not very much time at all". Going even further back, climate change was already mentioned in journalistic articles in the 1950s, yet journalists still had to defend the existence of anthropogenic climate change in the 2010s.

Along with the first international climate summits, media coverage of climate change grew in the 1980s. This led to an increase in scholarly attention for media representation of climate change in the 1990s with a focus on media products from North America, Europe, Australia, and New Zealand, largely neglecting coverage in Asia and Africa. Only in the past decade, research has expanded to study media coverage in countries other than North America and Europe. Looking at this wider context, this study has not only analysed the reporting of climate change but also considered the development of the research field, its focus points, and possible gaps. It also considered other factors such as contribution and vulnerability to climate change as well as international structures.

Zooming in a little closer, I started my research in mid-2020, a year that is probably best remembered as the first year of the COVID-19 pandemic. The COP26 scheduled for November 2020 in Glasgow was postponed and climate protests suspended due to lockdowns and other restrictions to keep the virus at bay. In contrast, 2019 was the year when the environmental movement *Fridays for Future* organised the Global Week for Future, a series of 4,500 strikes across over 150 countries, and when *Extinction Rebellion* occupied five central sites in London. Pressure on politicians grew and climate change was high on the agenda of most news media. In September 2019, the UN Secretary-General announced the Decade of Action which "calls for accelerating sustainable solutions to all the world's biggest challenges — ranging from poverty and gender to climate change, inequality and closing the finance gap" (UN n.y. a). It was a year when climate action and concrete measures were considered particularly urgent. Now, about three years later, the COVID-19 pandemic has largely been overcome and, for more

than a year, the Russian invasion of Ukraine has dominated the headlines. The succession of events has been striking in the years in which I have worked on and completed this doctoral thesis.

Through all these (unforeseen) events, crises, and changes, greenhouse gas emissions have continued to rise in many parts of the world, while other countries committed to introducing mitigation strategies against climate change. In March 2023, "scientists have delivered a 'final warning' on the climate crisis, as rising greenhouse gas emissions push the world to the brink of irrevocable damage that only swift and drastic action can avert" (Harvey 2023). Through all this, environmental journalists have continuously worked on telling the climate story. Media companies have established designated climate beats, reflected on the language to describe the crisis, and created networks to collaborate with journalists from other countries. It is no longer debated whether climate change exists; instead, news organisations discuss the impacts of climate anxiety on their audiences and their reporters. However, there is still a lot of work to do. Crises will always come and go, but climate change will outlast most of them. For this reason, it is particularly important to establish structures that facilitate a continuous stream of information that are understandable for and relevant to different audiences. Because already in 2009, Cottle (2009a) emphasised the media's ability to offer "a transnational and global perspective on a problem that both migrates across and transcends national frames of reference or explanation, exposing international interconnections, contextualizing motives and exploring both the scope of the problem and its human consequences" (100).

Having dealt with this topic for the past three years, I feel that we have reached a decent level of sensitivity toward this issue. Journalists have developed examples for best practices and established a sense of urgency – at least to a certain degree. And without making any vague predictions, climate change will continue to play a prominent role in the public sphere and the sphere of journalism. What this research can bring to the table is a cross-country analysis of climate coverage in eight different countries – some of them barely included in other studies – and insights into the structures that can either hinder or elevate said coverage. The focus is not only on content types and formats, but on the complex structural issues and challenges that underlie the reporting. This project also revealed how climate change reporting in different countries may share the same core issue but take on different forms. Climate change is a global issue, but the story of climate change is often told in a national context.

Appendix 1: Codebook

1. General information

This study investigates climate change reporting by way of a comparative media content analysis in the UK, the US, Germany, as well as Ghana, Kenya, Namibia, Nigeria, and South Africa. The corpus is the journalistic discourse on climate change in the eight countries, which is operationalised by investigating the coverage of two national quality newspapers – one right-leaning / conservative and one left-leaning / liberal – from all eight countries, respectively.

2. Information on sample

Period of analysis: 01 January 2020 – 30 June 2021

Search functions:

> (climat* (accord* OR action* OR activi* OR agenda* OR agreement* OR battle* OR chang* OR catastroph* OR commitment* OR commission* OR concern* OR conference* OR cris* OR damage* OR deal* OR debat* OR denial* OR denier* OR destruct* OR disaster* OR effort* OR emergenc* OR expert* OR fund* OR goal* OR initiative* OR injustice* OR insecurit* OR issue* OR justice* OR measur* OR meeting* OR mitigation* OR plan* OR poli* OR protest* OR report* OR resilien* OR risk* OR scien* OR summit* OR strik* OR talk* OR target* OR threat* OR transform* OR trend* OR warming*)) OR (greenhouse* gas* emission*) OR (global* warm*) OR (global* heat*) OR (Paris agreement) OR net zero OR (carbon emission*) OR (chang* climate) OR climate-friendly
>
> Klimaabkomm* OR Klimaaktivis* OR Klimadebatte* OR Klimaerwärmung* OR Klimaexpert* OR Klimaforsch* OR Klimafrag* OR Klimagerechtigkeit* OR Klimagesetz* OR Klimakampf* OR Klimakatastrophe* OR Klimakommission* OR Klimakrise* OR Klimaleugner* OR Klimaneutral* OR Klimanot* OR Klimapaket* OR Klimapolitik* OR Klimarat* OR Klimarevolution* OR Klimaschutz* OR Klimawandel* OR Klimawende* OR Klimaziel* OR Treibhausgas* OR Emission* OR (globale Erwaermung) OR Erderwaermung*

In order to control for relevance, every article found using this search function will be read carefully to assess weather climate change is a central topic, i.e., whether at least one full paragraph focuses on an aspect related to climate change. This includes climate change politics and policies, climate science, causes or impacts of climate change, as well as climate justice and measures to mitigate or adapt to the impacts of global warming following the example set in the study by Wozniak, Lück and Wessler (2015). If climate change is merely mentioned either in a different context or as part of an enumeration and the like, the article is not included in the set.

3. Format of codebook and structure of category system

The codebook is divided into two parts:

1. Coding sheet
2. Detailed explanations of the codes

Coding takes place on two levels:

Section 1: Formal level

Section 2: Content level

SECTION 1: FORMAL LEVEL

V001 Article-ID

Every article is numbered in sequence according to the outlet and the consecutive number in the sample, e.g., 1_1_003 (Ghana, Ghanaian Times, article number 3)

V002 Title

Please type the complete main headline of the article (bold headline without kicker or sub-headline). If the main headline is not determinable by typography, please write down the first, topmost headline.

V003 Date of publication

Please code the date on which the article was published according to the following format: dd/mm/yyyy (e.g., 01 August 2020 → 01.08.2020)

V004 Media outlet

1 Ghanaian Times
2 Daily Guide
3 The Standard
4 Daily Nation
5 The Namibian
6 New Era
7 The Guardian
8 Vanguard
9 The Sunday Times
10 Mail & Guardian
11 Süddeutsche Zeitung
12 Die Welt
13 The Times
14 The Independent
15 The New York Times

V005 Length of the article

1 100-300 words
2 301-600 words
3 601-1000 words
4 over 1001 words

V006 Format of article

Single selection

006_1 Fact-based article

006_2 News note

006_3 Opinion-based article

006_4 Interview

006_5 Report

006_6 Corporate content

006_99 Other (please specify)

V007 Author of the article

Please code the author of the article as designated at the beginning or the end of the article and indicate the name of the author / news agency.

008_1 News agency

008_2 Journalist

008_3 Guest author

008_4 Not indicated

008_99 Other

V008 Category

Single selection

007_1 Politics

007_2 Business / economy

007_3 Science / technology

007_4 Culture / entertainment

007_5 Environment

007_6 Human interest

007_7 Local news

007_8 Africa

007_99 Other

SECTION 2: CONTENT LEVEL

SECTION 2.1.: GENERAL

V009 News peg

Single selection

009_10 Institutional event

- 009_11 UN (climate change) conference
- 009_12 EU summit
- 009_13 Elections
- 009_14 Other international conference

009_20 Unpremeditated event

- 009_21 Extreme (weather) event
- 009_22 Environmental issue
- 009_23 Economic issue
- 009_24 Social issue
- 009_25 Infrastructural issue
- 009_26 Personal story
- 009_27 Covid

009_30 Deliberative event / communicative event

- 009_31 Presentation of (research) report / study
- 009_32 (Scientific) controversy
- 009_33 Presentation of new technology
- 009_34 Domestic (political) event / debate
- 009_35 International / global (political) event / debate
- 009_36 Protest / mobilizing event
- 009_37 Coverage of other mass media
- 009_38 Other public event

009_99 Other

V010 Main issue

Single selection

010_10 Politics

- 010_11 National politics
- 010_12 African politics
- 010_13 EU politics / EU-country
- 010_14 Euro-African politics

010_15 International politics

010_20 Business / economy

010_21 National business / economy

010_22 African business / economy

010_23 International business / economy

010_24 Energy sector

010_25 European business / economy

010_30 Science

010_40 Environment

010_41 Domestic event / environmental disaster

010_42 Foreign event / environmental disaster

010_43 Natural resources

010_44 Agriculture

010_50 International relations / cooperation

010_60 Social issue / human impact

010_70 Culture / entertainment

010_80 Individual case / personal story

010_90 Protest / movement

010_100 Covid

010_99 Other

V011 Climate change central or peripheral

Single selection

011_1 Central

011_2 Peripheral

SECTION 2.2.: ACTORS AND COUNTRIES

V012 Central actor / group of actors

Please code the actor that is mentioned first in the article.

012_1 Politician(s)

012_2 Scientist(s) / Expert(s)

012_3 Activist(s)

012_4 Professional / businesspeople

012_5 International / transnational institution(s) UN

012_6 Celebrity / celebrities

012_7 Ordinary citizen(s)

012_8 Diplomat

012_9 Organisation / institution / initiative

012_10 Company / companies

012_11 First person

012_99 Other

V13 Other actor(s)

Please code the actor that is mentioned second in the article.

013_1 Politician(s)

013_2 Scientist(s) / Expert

013_3 Activist(s)

013_4 Businesspeople

013_5 International / transnational institution(s)

013_6 Celebrity / celebrities

013_7 Ordinary citizen(s)

013_8 Diplomat

013_9 Organisation / institution / initiative

013_10 Company / companies

013_11 First person

013_99 Other

V014 Primary country references

Please note the country

V015 Secondary country references

Please note the country

SECTION 2.3.: NEWS VALUES

V016 News values

Multiple selection possible

016_1 Magnitude

016_2 Unambiguity

016_3 Proximity

016_4 Unexpectedness / Surprise

016_5 Continuity / Follow-up

016_6 The power elite

016_7 Reference to persons

016_8 Reference to institutions

016_9 Bad news

016_10 Good news

016_11 Entertainment

016_12 Exclusivity

016_13 Conflict / Drama

SECTION 2.4.: FRAME ELEMENTS

V017 Climate change frames

Multiple selection possible

017_1 Economic consequences frame

017_2 Human impact frame

017_3 Morality frame

017_4 Environmental frame

017_5 Political frame

017_6 Scientific frame

017_7 Mitigation frame

017_8 Threat

017_9 Activism

V018 Other climate change frames

Write down the frame(s)

V019 Global dynamics frames

Multiple selection possible

019_1 Cooperation frame

019_2 Attribution of responsibility frame

019_3 Conflict frame

V020 Other global dynamics frames

Write down the frame(s)

HOW TO CODE: DETAILED INFORMATION ON THE CODING SHEET

SECTION 1: FORMAL LEVEL

The first section of the coding sheet focuses on the format of the articles. This section does not only serve organisational purposes, but seeing how many long, medium, and short articles each website published on climate change, as well as examining how many of these are features, columns or news reports offers insights into the relative importance each newspaper ascribes to this subject. Additionally, the distribution of climate change related articles among the different categories shows which aspects of climate change are mostly reported, and thus, receive the most attention by the media.
The following questions can be investigated:
- Is there a difference in the amount of coverage climate change gets on each website?
- Under which category does each website prefer to publish articles about climate change?
- How many news notes, interviews, fact-based, and opinion-based articles about climate change are published on each website?

Notes on V005 Length of article
The words of each article are counted including the headline and the sub-headline and excluding the captions of images using *MS Office Word* or another text editor program since the articles are available in digital format.

Notes on V006 Format of article
(Following the example of Wozniak, Lück & Wessler 2015)

006_1 Fact-based article: A fact-based article is any news report, feature story, documentation of events, portrait of individuals or groups, info box, etc. which does not represent the personal point of view of a journalist. This kind of article is not marked as a commentary, or a question-and-answer interview.

006_2 News note: A news note is an article reporting events, press releases, news of the moment. It is usually shorter than 600 words and does not openly include opinions of the journalist. Instead, a news note can include – but is not limited to – reporting of facts, numbers, declarations, happenings, events.

006_3 Opinion-based article: Opinion-based articles are usually explicitly designated as such and (but not exclusively) are labelled as commentaries or columns. The articles give opinions and/or perspectives of the writer on a given subject. Contributions by external authors are also coded as opinion-based articles regardless of their placement since they present the viewpoint of a given individual without synthesis and/or contextualization by a journalist.

006_4 Interview: Only texts in a question-and-answer-format are coded as interviews. If an interview has been processed in a running text article and therefore contains some form of contextualization and evaluation by the journalist, it is either coded as a fact-based article or an opinion-based article, depending on the content.

006_5 Report

006_99 Other (please specify)

Notes on V008 Section of website / Category

This variable refers to the section of the website in which the article is published. Oftentimes, news websites have specific categories under which they classify their content and allocate each article an appropriate label.

SECTION 2: CONTENT LEVEL

SECTION 2.1.: GENERAL

Information gathered in this category will help understand which issues dominate the coverage of climate change on each website. By coding the news peg as well as the overall issues covered in each article, the results can indicate which kind of news stories about climate change get the most coverage in each of the media outlets.

The following questions can be investigated:

- What percentage of the articles focuses on which aspect of climate change?
- What is the issue that gets the most coverage?

Notes on V009 News peg

This variable refers to the condition or event that inspired the coverage of the analysed article and does not necessarily present the overarching topic of the article. The news peg is usually explicitly mentioned in the lead sentence or the first paragraph. Vliegenthart and Boomgaarden (2007) define three types of key events which can effectively influence media coverage and distinguish between unpremeditated events, institutional events, and deliberative events. Wozniak, Lück and Wessler (2015) adopted this categorisation and extended each of the three categories with further, more concrete subcategories which are also partly used in this study. Only one news peg for the coverage is coded per article. If there are two or more events that seem to have led to the coverage, the event or condition that is mentioned first in the article is coded.

SECTION 2.2.: ACTORS AND COUNTRIES

With the information gathered from these two questions, the most prominent actors in articles about climate change can be identified.

The following questions can be investigated:

- Who are the most prominent actors in the articles / in each region / in each country?
- What are the most prominent countries referred to in the articles? Are there any connections across national borders, i.e., which countries reference other countries the most or not at all?

Notes on V014 and V015 Country references

The category of the primary country refers to the place in the article that is predominantly referred to, i.e., where the primary event took place or where the political debate or election was held that is the focus of the article. Only one primary country can be coded, all other countries that are mentioned are coded and listed as secondary countries. Country references are coded if the country is explicitly mentioned and also if the country is referred to in other ways, i.e., when the country's capital is used synonymously with the country's government or when other references are made. If cities like Brussels or New York are mentioned but the article does not deal with issues relating to Belgium or the US, then the corresponding institution that is commonly associated with the cities is coded, i.e., the EU or the UN.

SECTION 2.3.: NEWS VALUES

The section on news values is based on the original news value framework created by Galtung and Ruge (1965) and Harcup and O'Neill's (2001) revisitation of the study and their revisited version of their initial categorisation (Harcup & O'Neill 2016). The systematisations of news values were reviewed, compared, and adjusted to fit this specific study. Since Harcup and O'Neill based their study on Galtung and Ruge's framework, there is some overlapping, and some news values differ only minorly in the words they use (e.g., the categories of "Unexpectedness" by Galtung and Ruge (1965) and "Surprise" by Harcup and O'Neill (2016)). The original study by Galtung and Ruge (1965) was published almost six decades ago, and the media system has evolved rapidly since then. This is one of the reasons why Harcup and O'Neill revisited their study again in 2016 to account for some of the major changes in the media industry, especially the inclusion and concentration on online and social media. Thus, some of the news values formulated by Galtung and Ruge (1965) are no longer valid in the same way. In order to create a system that is not unnecessarily complicated and without any doubling to allow for clear codes, both approaches were synthesised in the process of creating this codebook. This way, a list of news values was compiled that fits the current time and that fit the articles in this study. Each category is explained in the following with the appropriate section from each of the papers referred to above.

V016 News values

013_1 Magnitude: “Stories perceived as sufficiently significant in the large numbers of people involved or in potential impact, or involving a degree of extreme behaviour or extreme occurrence.” (Harcup & O’Neill 2016: 1482)

013_2 Unambiguity: “The more clear and unambiguous the signal (the less noise there is), the more probable that it will be recorded as worth listening to.” (Galtung & Ruge 1965: 65)

016_3 Proximity

016_4 Unexpectedness: “The more unexpected the signal, the more probable that it will be recorded as worth listening to.” (Galtung & Ruge 1965: 65) // Surprise: “Stories that have an element of surprise and/or contrast.” (Harcup & O’Neill 2016: 1482)

016_5 Continuity: “If one signal has been tuned in to the more likely it will continue to be tuned in to as worth listening to.” (Galtung & Ruge 1965: 65) // Follow-up: “Stories about subjects already in the news.” (Harcup & O’Neill 2016: 1482)

016_6 The power elite: “Stories concerning powerful individuals, organisations, institutions or corporations.” (Harcup & O’Neill 2016: 1482)

016_7 Reference to persons: “The more the event can be seen in personal terms, as due to the action of specific individuals, the more probable that it will become a news item.” (Galtung & Ruge 1965: 65)

016_8 Reference to institution

016_9 Bad news: “Stories with particularly negative overtones such as conflict, tragedy, death, injury, defeat and loss (of a job, for example).” (Harcup & O’Neill 2016: 1482)

016_10 Good news: “Stories with particularly positive overtones such as recoveries, breakthroughs, cures, wins and celebrations.” (Harcup & O’Neill 2016: 1482)

016_11 Entertainment: “Soft stories concerning sex, showbusiness, sport, lighter human interest, animals, or offering opportunities for humorous treatment, witty headlines or lists.” (Harcup & O’Neill 2016: 1482)

016_12 Exclusivity: “Stories generated by, or available first to, the news organisation as a result of interviews, letters, investigations, surveys, polls, and so on.” (Harcup & O’Neill 2016: 1482)

016_13 Conflict: “Stories concerning conflict such as controversies, arguments, splits, strikes, fights, insurrections and warfare.” (Harcup & O’Neill 2016: 1482) // Drama: “Stories concerning an unfolding drama such as escapes, accidents, searches, sieges, rescues, battles or court cases.” (Harcup & O’Neill 2016: 1482)

SECTION 2.4.: FRAME ELEMENTS

V017 Climate change frames

For this section, the codebook refers to the definition by Robert Entman (1993) who explains framing as "selecting some aspects of a perceived reality and make(ing) them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation" (52). Common news frames that have been identified in previous framing analyses include the conflict frame, economic consequences, human impact, attribution of responsibility frame and morality frames (Patterson 1993). Even though these studies did not focus on climate change reporting specifically, the frames are applicable to the issue of climate change. Using these frames as a foundation, a brief pilot study looked at five randomly selected articles from each of the 16 websites. Following the results of this pilot study, the primary frames observed were the political, scientific, environmental, and social frame in addition to the frames derived from the literature. All frames were tested using a pre-examination of representative parts of the sample to test their applicability to code this kind of content and gain meaningful insights. The most obvious frame in the article should be coded. If there is more than one prominent frame, both can be included for the purpose of the analysis.

Appendix 2: Topic guide for interviews

Section 1: Introduction

[Start with a general introduction to get the conversation going and make the interviewee feel comfortable or let her/him ask any questions. Address the recording of the interview.]

1. Could you tell me a little bit about your professional career, i.e., what different areas of journalism you worked in and what your current tasks include?
2. Before diving deeper into the topic, could you please describe in your own words how you perceive climate change reporting (in your country)?

Section 2: Main issue and news pegs

3. What are some of the most used contexts in which climate change is reported?
4. Which sections of the website most commonly include topics related to climate change?

Section 3: Frames and news values

5. When you think about climate change reporting, what commonly used frames come to your mind?
6. What do you think does a climate change related story need to make the news / be reported?

Section 4: Editorial choices

7. How is climate change reported? (as an environmental issue, as a social justice issue, as a political issue, …)
8. What factors influence the decision to either report on an issue related to climate change or to not report on it?

Section 5: National perspective

9. What is your view of climate change reporting in [INSERT COUNTRY] + in comparison with the other countries?
10. Is a local perspective necessary? If yes, why, if not, why not?
11. In your opinion, does the issue receive enough media attention? If not, please evaluate on possible reasons for that.

12. Do you think climate change is reported as a global issue?

Section 6: Organisational structure

13. Could you describe the newsroom structure of the media company you work at?
14. What are the typical obstacles and challenges for you in reporting on climate change? (If there are any.)
15. Are there any plans for expanding climate reporting?
16. What do you think are the advantages / disadvantages of creating a climate desk?

Section 7: Conclusion and thank you

17. To conclude, what is the status quo of climate change reporting in your view?
18. What do you think about the future of climate change reporting / what do you think is important / needs to change? /
19. Is there anything you would like to share before we wrap up?

[Conclude the conversation, ask if there are any questions left and thank you for taking the time.]

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