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**Sources and framing:
a comparison of media coverage of
climate change across the world**

Master Thesis

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Abstract

This paper looks into how climate change is being covered by newspaper media in two Global South countries and two Global North countries – India, the Philippines, Denmark and Australia. While there is some literature on who the main sources are in climate change coverage, as well as how frequently climate change is covered in different countries, there is less literature on how climate change is framed, and how this relates to who the main sources are. Analyzing articles from three newspapers in each country, this content analysis gathered data on what sources are being predominantly used in news articles, and further, how these articles are being framed. It was found that climate change has become a highly politicized issue in the media across most of these countries, and that the main voice in how climate change is becoming to be understood is politicians – except for in Denmark. At the same time, it was found that climate change is mainly being framed as an issue in need of action – except for in Australia.

Keywords

Climate change; framing; sources; newspaper; India; Philippines; Denmark; Australia; politicization; action

Abstrakt

Tato práce se zabývá tím, jak o změně klimatu informují novinová média ve dvou zemích jižní polokoule a dvou zemích severní polokoule - v Indii, na Filipínách, v Dánsku a Austrálii. Zatímco existuje určitá literatura o tom, kdo je hlavním zdrojem informací o změně klimatu, a také o tom, jak často se o změně klimatu v různých zemích píše, méně literatury se zabývá tím, jak je změna klimatu rámována a jak to souvisí s tím, kdo je hlavním zdrojem. Tato obsahová analýza analyzovala články ze tří novin v každé zemi a shromáždila údaje o tom, jaké zdroje jsou ve zpravodajských článcích převážně používány, a dále o tom, jak jsou tyto články zpracovány. Bylo zjištěno, že změna klimatu se ve většině těchto zemí stala v médiích silně zpolitizovaným tématem a že hlavní slovo v tom, jak začíná být změna klimatu chápána, mají politici - s výjimkou Dánska. Současně bylo zjištěno, že změna klimatu je chápána především jako problém, který potřebuje opatření - s výjimkou Austrálie.

Klíčová slova

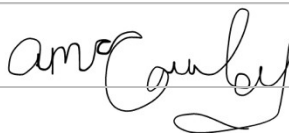
změna klimatu; rámování; zdroje; noviny; Indie; Filipíny; Dánsko; Austrálie; politizace; akce

Range of thesis: 54 pages and 97,051 characters

Declaration of Authorship

1. The author hereby declares that he compiled this thesis independently, using only the listed resources and literature.
2. The author hereby declares that all the sources and literature used have been properly cited.
3. The author hereby declares that the thesis has not been used to obtain a different or the same degree.

1st July, 2022
Amina McCauley
Prague



Institute of Communication Studies and Journalism
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Expected date of submission (semester, academic year – example: SS 2021/2022) (Thesis must be submitted according to the Academic Calendar.) SS 2022											
Main research question (max. 250 characters): How is science used as a source in climate change coverage around the globe and how does this affect the framing of climate change as an issue of responsibility?											
Current state of research on the topic (max. 1800 characters): <p>Some literature sees the relationship between media and sources as symbiotic, while other researchers claim that sources have the upper hand (Anderson 2017). In the current media environment, public relations has gained more power and news outlets are struggling to survive, allowing for sources to gain more and more power (Anderson 2017). Not all sources have equal access to the news media, as the authoritative position of elites means they tend to be privileged by the media.</p> <p>When climate change first began to gain news media attention in the early to mid-1980s scientists were the principal news sources (Anderson 2017). However, from the late 1980s politicians increasingly influenced the agenda and it moved from being a story largely confined to specialist science sections to a more general news item focusing on political controversy (Anderson 2017).</p> <p>A study of mass media coverage of climate change in Peru (Takahashi 2011) in 2008 found that the media relied mostly on government sources, giving limited access to dissenting voices such as environmentalists. Additionally, a prominence of “solutions” and “effects” frames was found, while “policy” and “science” frames were limited. A study of media coverage of climate change in the U.S and Canada found that in both countries, non-science sources are considerably more prevalent (Takahashi et. al 2017).</p> <p>In a study on responsibility framing in Indian, Nigerian, Australian and U.S newspapers, it was found that in India, 32% of reporting was science-based, which was the highest of the four countries (Murali et al 2021). In the same study, it was found that 28% of reports in Australian media attributed some level of responsibility (rather than having a neutral report with no blame), where there was also less science-based reporting than the U.S and India (15%).</p>											
Expected theoretical framework (max. 1800 characters): Framing theory says that media communicates an issue in such a way as to “promote a particular problem definition, causal											

interpretation, moral evaluation, and/or treatment recommendation” (Entman 1993). It is understood by Gurevitch and Levy (1985) as a contest or power struggle between different actors to have centre stage in the media. I will use framing theory as the framework of my thesis, arguing that the use of sources by journalists shapes the frame of climate change.

Expected methodology, and methods for data gathering and analysis (max. 1800 characters):

I will use a combination of quantitative and qualitative content analysis, quantitative data will provide information about what percentage of the news articles in each country used scientific sources, compared to political and other sources. The news articles will be deemed to use scientific sources when the “main” source, being the source quoted or referred to in the core of the article is scientific. Each article will then be analysed qualitatively, to see what “frame” is present in the article.

Expected research design (data to be analyzed, for example, the titles of analyzed newspapers and selected time period):

I will look at news coverage of climate change in four different countries: India, Philippines, Denmark and Australia (two from the global south and two from the global north). I will do this so as to present an analysis of source use and responsibility frames in differing regions around the world. The articles will be from 2021, so the analysis will be from recent media trends. A large sample of online news articles from two or three different English-language newspapers from each of the four countries will be used. Data will be gathered through access to databases of each of the newspapers. The newspapers will therefore be chosen based on ability to access archived articles.

Expected thesis structure (chapters and subchapters with brief description of their content):

Introduction

Literature Review

- Climate change coverage (looking at the current research around whether climate change coverage is increasing, studies into whether the use of sources have changed in climate coverage, where in the world climate change is covered the most)
- Framing
- The four countries to be used in my study (looking at the impacts of climate change in each of these countries and the climate change coverage in each of these countries)

Methodology

- The four countries I am studying and why
- The process of finding the news outlets in each country
- Quantitative analysis (categorizing sources)
- Qualitative analysis (framing analysis)
- Explain how results are coded


Results


- Categorized in their respective countries
- Overall results being compared among another

Discussion

- What sources are newspapers across the globe using and how do they differ
- What frames are attached to each of these sources and is there a correlation
- What does this say about source use and framing of climate change

Conclusion

<p>Basic literature list (at least 5 most important works related to the topic and the method(s) of analysis; all works should be briefly characterized on 2-5 lines):</p> <p>Anderson, A. 2017, 'Source influence on journalistic decisions and news coverage of climate change', Oxford University Press.</p> <ul style="list-style-type: none"> - Summarized in Current State of Research <p>Carlson, M. 2009, 'Dueling, dancing, or dominating? Journalists and their sources', <i>Sociology Compass</i>, Vol. 3, No. 4, pp. 526-542</p> <ul style="list-style-type: none"> - Analyses how the news gets made at the point of contact between journalist and source. - Argued that there is no totalizing theory of new sources that can explain the nature of news work, but that in a world defined by flux, it is more important now than ever to make sense of the relationship between media and . <p>Entman, R. M., 1993. 'Framing: toward clarification of a fractured paradigm', <i>Journal of Communication</i>, Vol. 43, No. 4, pp. 51-58.</p> <ul style="list-style-type: none"> - Entman is one of the leading thinkers of framing, so this literature is important for the theoretical base of my thesis <p>Takahashi, B., Huang, K., Fico, F., and Poulson, D. 2017 'Climate Change Reporting in Great Lakes Region newspapers: A Comparative Study of the Use of Expert Sources', <i>Environmental Communication</i>, Vol. 11, No. 1, pp. 106-121.</p> <ul style="list-style-type: none"> - The study focused on all climate change coverage from online daily newspaper websites in the Great Lakes region between 1 August 2011-30 April 2012, several months before and after the United Nations COP 17 in Durban, South Africa <p>Murali, R., Kuwar, A., and Nagendra, H., 2021, 'Who's responsible for climate change? Untangling threads of media discussions in India, Nigeria, Australia, and the USA', <i>Climatic Change</i>, Vol. 164, No. 51, pp. 1-20.</p> <ul style="list-style-type: none"> - Analysed the media on climate change in the top three most-read English newspapers in each country (India, Nigeria, U.S, Australia) - Found varying responsibility frames between each of the countries media outlets 	
<p>Related theses and dissertations (list of B.A., M.A. and Ph.D. theses defended at Charles University or other academic institutions in the last five years):</p> <p>Davidová, Kateřina, 'Framing Climate Policies: Discourse Analysis of Carbon Pricing Debates in Canada and Australia', Faculty of Social Sciences, Charles University</p>	
<p>Date / Signature of the student: 9/11/2021</p>	

<p>THIS PART TO BE FILLED BY THE ACADEMIC SUPERVISOR:</p> <p>I confirm that I have consulted this research proposal with the author and that the proposal is related to my field of expertise at the Faculty of Social Sciences.</p> <p>I agree to be the Thesis supervisor.</p> <p>Dr Annamária Neag, 10.11.2021</p> <p>Surname and name of the supervisor Date / Signature of the supervisor</p> <p>Further recommendations related to the topic, structure and methods for analysis: Further recommendations are being added in the Miro tool used by the supervisor and the supervisee.</p> <p>Further recommendations of literature related to the topic: See above.</p>	
	

The research proposal has to be printed, signed and submitted to the FSV UK registry office (podatelna) in two copies, by **November 15, 2021**, addressed to the Program Coordinator. Accepted research proposals have to be picked up at the Program Coordinator's Office, Mgr. Sandra Štefaníková. The accepted research proposal needs to be included in the hard copy version of the submitted thesis.

RESEARCH PROPOSALS NEED TO BE APPROVED BY THE HEAD OF ERASMUS MUNDUS JOURNALISM PROGRAM.

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1. Introduction

“If we continue on our current course, our world is headed for disaster”.

David Attenborough: A Life on Our Planet (2020) is the nature documentary maker’s “witness statement” whereby Attenborough shares his concern for humanity’s impact on nature. Attenborough’s documentary outlines the devastating impacts that climate change will have on our planet should we not act now. In many countries, floods, bushfires and other natural disasters are devastating lives and natural environments, and the science tells us that this is due to man-made global warming (O’Gorman, 2020). In Australia, the summer between 2019 and 2020 saw bushfires devastate the east coast, during which nearly 1.25 billion animals were killed or displaced, in what is known as Australia’s most devastating bushfires to date (O’Gorman, 2020). Then, in early 2022, whole towns and homes were washed away in catastrophic floods, which killed over 20 people (Cassidy, 2022). In the UK, many are considering not having children, too afraid of raising another generation into this world (Hill, 2021). Recycling is a moral choice, greenwashing is a common abuse of the green movement, and more and more, consumers make choices based on what might happen should we continue to live the way we do. Mitigation efforts are happening everywhere, yet still, many governments continue to allow carbon emissions to rule the energy market, and daily, people make decisions that give a half-hearted wave to the impacts of climate change. A debate still runs rife in the media. Protesters still march the streets in countries all around the world. Every year the Conference of the Parties, the decision-making body of the United Nations Framework Convention on Climate Change, brings together global leaders to discuss an issue that was largely brought about by the Global North, and seems to be most imminently impacting the Global South.

Our news on climate change tends to be of disasters, of conferences, or of policy decisions. It

tends to cover what's happening right now, what imminent impacts we're witnessing, what current actions we are seeing, what leaders are saying.

Climate change is not news. It entered the media sphere many years ago now, when scientific research shone a light on how our environment was beginning to change. At the beginning, in the late 1950s and 1960s, climate change was centered on scientific findings, journalists finding news on our changing environment in IPCC reports, in conferences full of scientists, and in meetings (Agin & Karlsson, 2021). When the phenomenon of global warming first became a term known by citizens, it was not yet understood or widespread enough to enter the political realm. Over time though, the spectrum of what is understood now to be climate change has grown rapidly, and journalists, scientists and politicians alike have wanted the general public to understand it and comprehend it. (Agin & Karlsson, 2021). At first, "global warming" was the preferred term, but shifted to "climate change" after 2015 (Soutter & Möttus, 2020). After the release of the IPCC report in 2007, which laid the groundwork for the post-Kyoto agreement, and after the Nobel Peace Prize was awarded to Al Gore, who tirelessly campaigned to put climate change on the political agenda, climate change became a global media event (Barkemeyer et al., 2017).

The media plays a vital role in constructing knowledge about climate change and empowering people to make informed choices (Carvalho, 2008), the public learning most of what it knows about science and about climate change from the mass-media (Boykoff & Boykoff, 2007). As will be discussed below, critical is the role of individuals in the mitigation and decision-making around climate change (Areia et al., 2019). Policy makers are, in many parts of the world, influenced by public opinion, and so the way the media frames climate change and offers solutions to climate change is vital for public opinion and thus for policies around the

phenomenon. Studies have found, though, that while engagement and understanding of climate change is vital for policy decision-making, many individuals find it difficult to engage with climate change, due to invisible causes and distant impacts among other reasons (Areia et al., 2019). It is at this point that the media plays an essential role. Journalists must face the challenge of communicating a complex issue into simple terms, holding policy-makers to account, all while contributing to the progressive understanding of the masses without belittling its severity.

It is here that this study comes in. Analyzing newspapers in two Global North countries and two Global South - Australia, Denmark, the Philippines and India - this research study will aim to discover whether there's a relationship between what sources are used by journalists in their media coverage of climate change, and how the topic of climate change is being framed, looking to see if there's a difference between Global South countries and Global North countries, as well as within these regions. A source will be defined in this study as that which is referred to, paraphrased or quoted in a news article, while a frame will be understood as what aspect of climate change is focused on, what the problem is depicted as, and/or what solution is being prescribed. This study is important because who the media gives a voice to is pivotal in how audiences come to understand and perceive any given topic. At the same time, how climate change is framed, contributes to how audiences come to discuss and understand the issue. This study aims to dive into this further, analyzing what sources are being used and whether or not this has a relationship with the way it is framed. As expert sources are used less and less in climate change coverage, and politicians more and more, does this change the way climate change is being written into the public sphere by journalists? This study will ask:

RQ: What sources are predominantly used in newspaper media coverage of climate change across the world - in India, the Philippines, Australia and Denmark - and how are these same articles framed?

Unlike what was outlined in the thesis proposal - which was to explore specifically how science and scientists are used as a source in media coverage across the world - this thesis will instead look at the use of sources more broadly, to see who and what is being given a voice in media coverage of climate change, looking at this aspect quantitatively to find patterns. The proposal also stated that this thesis would look at frames of responsibility, but again, this study instead looked at what frames were being used more broadly, to again look at patterns of source use and framing. The theoretical framework will discuss the use of sources in climate change coverage, journalistic norms, as well the media industry and climate change policy in each country of the study - India, the Philippines, Australia and Denmark. It will then discuss framing theory. There is much research on the topic of climate change coverage around the world, but little which has looked at the relationship between source and framing.

2. Theoretical framework

The bodies of literature concerned with the use of sources in climate change coverage will now be discussed, looking at how scientists and academic experts were once the primary voices in the coverage, and how this has since changed. As the theoretical framework of this study will be governed by framing theory, literature of how sources impact framing of media coverage will be discussed, as well as what hasn't yet been discussed. This study aims to take a step further, looking at whether there is a relationship between sources used in media coverage and the framing of media by the newspapers, therefore doing a comparison between various countries. It is hence important, I believe, to have a discussion about audiences, and why it matters how newspapers are covering the climate crisis and who they are giving a voice to. The literature review will therefore discuss audience engagement and journalistic norms, and the relationship here, before looking more specifically at each of the countries to be researched - India, the Philippines, Australia and Denmark.

2.1 Use of scientists in climate change coverage

The debate about climate change, represented in the media, has been increasingly prominent in science since the late 1950s (Agin & Karlsson, 2021). At the beginning, the media coverage on climate change, when it was referred to as global warming, was mostly centered around scientific findings, for example IPCC (International Panel on Climate Change) reports and conferences and other meetings. At the time, the information being conveyed was from scientists to scientists and policymakers. This has since then, though, transformed into a much more broadly debated topic, the discussion including politicians, scientists and citizens alike. Today, climate change is agreed by most scientists to be a real phenomenon, and is considered an anthropologically caused

phenomenon (Anderson, 2017). It has become a highly contested issue not just between scientists and policymakers, but between organizations, politicians and citizens of the global public. As climate change has become a politicized issue affecting not only the environment but also economies and social structures, there are now a multitude of sources vying for media attention on their given perspective (Anderson, 2017). Among others, these include scientists, government, industry, environmental non-governmental organizations and celebrities. This means that while scientists were the primary news source when climate change first began to gain media attention - as it was mainly an issue in the realm of science - they are now competing for media attention with politicians, who have increasingly gained influence in the news. Climate change has moved from a scientific phenomenon to general news and political controversy (Anderson, 2017). Journalists therefore increasingly began to rely on political sources to form the discussion. As climate change began to become more controversial and debated, and to become a topic covered by many sections in a newspaper, sources now have to compete for media attention, as well as to frame the story in their favor (Anderson, 2017).

Not only has climate change left the scientific field of news and of study, but it has also become a topic difficult for journalists to convey (Anderson, 2017). Anderson (2017) wrote that in the relationship between media and sources, sources have the upper hand. As public relations has gained more and more power while journalists have had less and less time and resources, the sources used by public relations practitioners have also gained increasing dominance. Not all sources have equal access to the news media, but rather those with authoritative positions tend to be favored by the media (Anderson, 2017). Due to time constraints, journalists tend to automatically lean towards institutional sources, who are perceived to be both reliable and trustworthy (Anderson, 2009). As the media also tends to follow the political agenda, the

coverage of events tends to be closely tied to policy developments, meaning any political developments or actions around climate change garner media attention and are voiced by politicians themselves (Anderson, 2009; Boykoff & Boykoff, 2007).

2.2 How the voice of climate change has changed

Academic research into the use of sources in climate coverage has indeed found this favourisation of political voices. A study of mass media coverage of climate change in Peru (Takahashi, 2011) in 2008 found that the media relied mostly on government sources, giving limited access to dissenting voices such as environmentalists. Takahashi (2011) found that solutions and policy were far more prominent frames than the science frame, stating that this is likely due to a limited knowledge and understanding of the science of climate change by journalists, policy makers and citizens. Similar findings were made by Takahashi et al., (2017) in a study of media coverage of climate change in the U.S and Canada. In both countries, non-science sources were considerably more prevalent in the examined news articles.

A study by Das (2019) examined news sources in two newspapers in Bangladesh, focusing on the coverage of river systems and climate change in 2009 and 2015. The study analyzed the sources used by the journalists in the articles to understand the framing of river degradation and climate change: “The aim here is to illustrate the journalists’ influence in defining these environmental problems against various news sources and social actors,” (Das, 2019, p. 526). The author argues that as Bangladesh is one of the most vulnerable countries to climate change, it is worth exploring how the media frames the debates surrounding environmental issues, saying that it is necessary to question whether journalists also use scientific climate change experts as a source in a highly politicized issue. The study found that in

the case of the river issues (a local, specific issue), the journalists challenged the government in their frames and use of sources, while in the topic of climate change, this scrutiny was not as evident. Das (2019) references Pham and Nash (2017) in their coining of the term “unity of purpose”, which argues that: “... when there is a consensus within dominant sources, journalists tend to follow the line of these sources,” (p. 123). The study found that in the topic of climate change in the media, there was little conflict between the experts and politicians, but when covering the river degradation, journalists used sources which showed a matter of contestation between experts, citizens and politicians (Das, 2019). “With this difference, it can be argued that the journalists aligned with various sources to uphold the discourse of environmental justice,” Das (2019, p. 135) wrote, saying there is a difference between global problems impacting Bangladesh, and local problems where the actors are pitted against one another. Das’ study hence found a difference between coverage of local environmental issues and of climate change as more of a global/international topic, whereby there is less contestation between sources - defined by journalists - in the international phenomenon.

2.3 How sources affect framing

Carlson (2000) writes that social order is perceived through how the news chooses to aggregate the visions of its sources. This means, Carlson posits, that those who are frequently voiced in the media, and those who aren’t, leads to assumptions of who is powerful and who has authority on given topics: “To study news sources is to pry open these assumptions, question their impact, and posit alternative ways of conceiving sources,” (p. 527). Takahashi et al. (2017) argue that the three main types of non-science sources found in climate change reporting are government, business and interest groups. These sources tend to engage in advocacy for a certain cause, based

on economic and ideological values among others. It has been found that journalists are heavily reliant on official sources, and that sources such as academic experts and other interest groups are usually voiced less in the media and therefore have far less influence over media coverage in general (Speer, 2017). This is argued to be due to the “indexing norm”, an informal rule that denotes that the range of views of leading officials are the range of views in the news media (Bennett, 1990). Frames often only change, Bennett posits, when political elites disagree about issues or events, as argued by Das (2019) above. Aside from this disagreement, media coverage of any given issue tends not to present views that disagree with or sway from the official narrative.

The media framing of climate change is therefore influenced by the sources that the journalists choose to use. A study by Murali et al (2021) aimed to understand print media discourses on the existence and responsibility for climate change across four different countries - two in the global south (India and Nigeria) and two in the global north (Australia and USA). The study found that the way responsibility of climate change was framed, and the narratives used within this, varied across the four countries. Australia shifted responsibility, USA took responsibility, India assigned responsibility to the Global North, while Nigeria saw all countries as equal in terms of responsibility in causing and solving climate change. The study found that Australia was the most likely to base their climate change reporting on events, and the second least likely (after Nigeria) to base reporting on science. India on the other hand, had the highest percentage of science-based reporting (Murali et al., 2021).

2.4 Why audiences matter to this study

Research into how climate change is framed by the media and how the use of sources contribute to this is important because most of the knowledge and understanding that laypersons accumulate about climate change comes from the media. Therefore, the media can determine how a citizen feels about climate change and how they choose to act on it. This section will therefore aim to outline how journalists cover climate change - journalistic norms - and why, and how this may affect audience understanding and action/inaction towards climate change. For as Nisbet (2009) states, quality news coverage tends to only reach an audience which is already informed and engaged, while the rest of the public either ignores or reinterprets competing claims based on partisanship or self-interest, supported by public opinion research.

At the same time, individuals' attitudes towards climate change influence policies that act to solve and mitigate the effects of climate change, while also influencing their own actions and adaptive responses towards climate change (Areia et al., 2019). Hence, journalistic and media practice affects policies on climate change and individual reactions.

2.4.1 Journalistic norms

We will now turn to journalistic norms, and how this influences the choice of sources and the framing of climate change, and thus audience understanding and public opinion. Boykoff and Boykoff (2007) write about journalistic norms and climate change in the US context, but this can arguably be understood globally. They state that by adhering to widely accepted journalistic norms in their reporting on climate change, “influential mass-media newspaper and television sources in the United States have misrepresented the top climate scientists perspective, and thus

have perpetrated an information bias regarding anthropogenic climate change,” (Boykoff & Boykoff, 2007, p. 1191). These norms include personalisation, dramatization and novelty, as well as authority-order and balance.

Firstly, journalists often want to personalize a story, adhering to the news value of human interest, adopting the idea that news is more consumable and relatable if it is about individuals and personalities rather than group dynamics or social processes (Harcup & O’Neill, 2017). This means though, that when reporting on climate change, the story often focuses on “individual claims-makers who are locked in a political battle” rather than concentrating on power, context and processes (Boykoff & Boykoff, 2007, p. 1192). Seldomly, the authors argue, personalized stories are linked to deeper social analysis. At the same time, journalists and their media tend also to follow the norm of dramatization, whereby crisis is more newsworthy than continuity, and the present more important than past or future (Boykoff & Boykoff, 2007). This prioritizes a “critical event” over an analysis or overview of complex policies, functions of institutions and the bases of power behind issues and central characters. The complexity of the urgency of climate change is therefore often dismissed by the media and therefore the public, as the issue is complex and lacks “immediate, visible impacts” (Nisbet, 2009, p. 14). Of course though, this is not the case in natural disasters which are often today linked by journalists to climate change.

Scientists, with their elusive profession and careful speech, tend not to fit into either the personalisation or the dramatization norms. They are cautious when presenting information and speak in a language of probability, which arguably “does not translate smoothly into the crisp, unequivocal commentary that is valued in the press,” (Boykoff & Boykoff, 2007, p. 1192). Journalists therefore try to present scientific findings into more colloquial terms which can downplay the importance and complexity. The climate change issue - which is ongoing and non-

personalised - is therefore less newsworthy to journalists, as the way of news tends to leave out that which does not hold an immediate sense of excitement and controversy (Boykoff & Boykoff, 2007). As the media also relies on “novelty”, environmental problems tend to nowadays slip out of the news cycle, as the underlying causes and long-term consequences of climate change are not newsworthy in the daily grind.

Adding to this is the journalistic norm of “authority-order bias” (Boykoff & Boykoff, 2007, p. 1193), meaning that journalists feel they must first consult authority figures such as government officials and business leaders to reassure the public of order and safety, before turning to second-order sources. Furthermore is the norm of balance and objectivity, meaning journalists often fall into the trap of interviewing scientists with competing ideas, feeding into the dialogue on scientific uncertainty (Boykoff & Boykoff, 2007). Therefore, according to Wilson (2000), while society relies on accurate and understandable information in order to make behavioral changes, climate change coverage has typically focused on the sensational, technical or too abstract for the general public, “and do not help people make a connection between their everyday actions and the impending long-term global changes that will probably take place,” (p. 1). Wilson (2000) also found that prior to 2000, global warming reporting had declined because of its inability to sustain the status of a dramatic crisis, which is arguably still happening today. Journalists and the media therefore tend to simplify the complex problem of which is climate change, but which sometimes translates into the belittling of the problem and its consequences (Agin & Karlsson, 2021).

2.5 What drives media coverage in different countries

This study will follow on from some of the studies outlined above, to look at how different countries around the world cover climate change, and what sources they use, in an aim to open a discussion about how individuals from different cultures and societies learn about and understand climate change. It is therefore helpful to look at previous literature on what drives media coverage in different countries.

A study in 2017 by Barkemeyer et al. explored how climate change had made headlines in broadsheet media across 41 countries. The research question was: “Which factors drive media attention to climate change?” They found that the main determinants were not a country’s exposure to climate change nor its track record in relation to climate policy, rather that there were numerous contextual factors that were relevant to how the media agenda was shaped, including national-level governance and unemployment trends. Climate change is no longer an issue mainly covered by wealthier countries, the study found (Barkemeyer et al., 2017). The study looked at countries from different parts of the world to see whether the factors differed between them, arguing that the specific impacts of climate change vary considerably between countries, and were more likely to be perceived as more imminently threatening by developing countries, than from most of continental Europe for example. Barkemeyer et al. (2017) also noted that the wealthier the nation, the higher the consumption of environmental resources, but at the same time, economic development can also be positively related to the development of solutions to environmental problems.

A recent study (Hase et al., 2021) aimed also to look at news media coverage of climate change across the globe, of both the Global South and the Global North, examining how the level of issue attention differs between these parts of the world. They looked at coverage and the changes between 2008 and 2016. The authors suggested that focusing on how climate change

impacts public health or on what actions people can take may foster public engagement. While the crisis is global, Hase et al. (2021) posit, it affects different countries very differently. They found that climate change received less attention in countries from the Global South, but when covered in the Global South, tended to focus more on the societal dimension of climate change and in particular its impacts on humans. It also found that while attention increased in Namibia, the UK and the US, it decreased only in Australia. Trends were inconsistent elsewhere. In the case of Australia, this shows that while in 2008 media attention to climate change was high, it has decreased since then. Australia was the only country in this study whereby there was a significant decline in media coverage of climate change over this time period. (Hase et al., 2021).

In 2014, a study by Schäfer and Schlichting looked into what drives media attention of climate change in German, Australian and Indian media. The authors sat on the premise that the more attention an issue gets, the more likely it is to seem important to the audience, and therefore has an “agenda setting” effect. The study looked at articles on climate change in each of these countries between 1997 and 2010, and found that on average, climate change coverage accounted for 1.42% of all articles published in two Australian newspapers, 0.41% in the German newspapers and 0.28% in the Indian ones, and that the coverage of climate change has increased over time in all three of the countries. (Schäfer and Schlichting, 2014).

The study previously discussed by Barkemeyer et al. (2017) preconceived that as economic development had an impact on levels of carbon emissions, that this would be linked to higher levels of awareness of climate change and thus more media coverage. At the same time, the authors suggested that where income levels are lower, basic needs are prioritized over the quality of the environment. They found however, that this was in fact false, that levels of

economic development did not have a significant impact on media coverage of climate change, but rather that the wider governance context was more of a deciding factor:

Effective governance might in fact provide the enabling environment in which not only climate policy is seen as a viable avenue to pursue, but also in which the media can more effectively inform and mobilize the general public and reflect public opinion in relation to climate change. (Barkemeyer et al 2017, p. 1046). (See also: Boykoff & Boykoff, 2007).

It was assumed by Hase et al. (2021) that scientific issues are covered less in countries from the Global South due to journalistic resource scarcity, their study of climate change coverage across Global South and Global North countries finding that climate change was covered less frequently in the Global South. The authors argued that this could also be due to climate skepticism having more space in the Global North, leading to more frequent discussions about climate science. While not covering climate change as frequently, when the Global South media did cover climate change it tended to focus more on the societal dimension of climate change – its effects on humans (Hase et al., 2010). All the countries in the study from the Global South – India, Namibia, South Africa and Thailand – included this trend. The authors suggest that journalists in the Global South tend to be perhaps less objective in their reporting, and act as progressers of development: “They are interested more in aiding national development and social change and less in acting as detached, adverse observers” (Hase et al., 2021, p. 2). Boykoff (2010) wrote that journalists in many places in the Global South tend to lack the capacity and training to cover the complexity of climate change. A lack of research on climate change representations in the media in these countries means there is an ongoing challenge for accountability regarding climate change, as understandings can lead to how these representations

play a role in how certain voices shape the story (Boykoff, 2010). Boykoff argues that further investigations are needed in India, in other countries (other than the West) as well as comparisons across countries. This will give insights into how the media frames complex climate-related issues, and “what influences these activities may have for public engagement and policy action” (Boykoff 2010, p. 23).

2.5.1 Media landscape and climate change in India, the Philippines, Australia and Denmark

This study therefore aims to analyze the sources and framing in climate change coverage in both the Global North and Global South, and so herein will be discussed the media and political landscapes in terms of climate change in each of the four countries of this study.

The ownership of media organizations impacts the way climate change is framed, through written policies as well as unwritten codes of conduct (Anderson, 2017). Anderson (2017) states that large media outlets tend to give less autonomy to journalists and therefore have larger influences on the framing of an issue, while these influences are less significant for independent social media content providers. This study will look at news articles from some of the major broadsheet newspapers in India, the Philippines, Australia and India, so this discussion will focus on ownership of these particular media.

In India, newspapers are published in over 30 languages, with Hindi and English the most dominant (Billett, 2010). The only nationally circulated newspapers are the English-language press (Billett, 2010). The three major English-language newspapers that this study will assess - The Times of India, The Hindu, Hindustan Times are the English-speaking newspapers in India

which are all read weekly (Newman et al., 2022).

India is an emerging economy that is strongly impacted by the effects of climate change (Schäfer & Schlichting, 2014). Schäfer and Schlichting (2014) argue that in India, climate change is largely discussed as an external threat caused by industrialized countries which should now also be the ones dealing with it. Indian politics around climate change is shaped by the fact that it has historically low levels of emissions per capita, as it is a developing economy (Dubash, 2013). At the same time, the country faces ongoing problems of poverty and is likely to be impacted by the effects of climate change. About half of the Indian population is dependent on agriculture or other climate sensitive sectors, and at the same time has tripled its carbon dioxide emissions between 1990 and 2011, and this is predicted to increase by 2.5 times by 2035 (Thaker & Leiserowitz, 2014). Therefore, as India has a rapidly growing economy, it is being called on in the global political sphere to act on climate change much like countries from the Global North who India deem to be most responsible (Dubash, 2013). India has responded by ensuring this context is taken into account, modifying the IPCC's understanding of "common responsibilities" across countries to "common but differentiated responsibilities" (Dubash, 2013, p. 192). Murali et al (2021), when conducting their study on responsibility framing in media coverage of climate change, found that the Indian media when reporting on climate change, raised issues of social justice and fairness. There is a difference, they write, between those who have benefitted from India's growth, and the rural poor. At the same time, the poor in India are the most vulnerable to the impacts of climate change, and so Murali et al. (2021) argue that an unequal balance of articles focused on ascribing responsibility to the Global North and taking responsibility themselves is important.

The Philippines has over 100 daily newspapers, and broadsheet newspapers are in the English language, and those found in the capital region tend to resemble Western newspapers in their content - political news, sports, lifestyle (Evans, 2016). Most broadsheet newspapers in the Greater Manila Area are printed in English, suggesting that broadsheet media in the Philippines caters to the English-educated elites and middle class (Guioguo, 2015). The Philippine Daily Inquirer is the most widely read broadsheet newspaper in the country, followed by the Manila Bulletin, the Philippine Star, Manila Times and Business World (Guioguo, 2015). The Philippine Daily Inquirer, the Philippine Star and the Manila Times are the newspapers that will be analyzed in this study. Since the People Power Revolution of 1986 there has been a growth in coverage of social issues including environmental issues, which had previously been ignored or seldom covered (Guioguo 2015). It should be noted though, that print media readership in general in the Philippines is on the decline, lagging behind television, radio and the internet (Estella & Löffelholz, 2019).

Like India, the Philippines is heavily dependent on climate-sensitive economic processes and is therefore highly vulnerable to the impacts of climate change, having fewer resources for adaptation (Barreda, 2018). Evans (2016) argues that there is very little scholarly analysis on the Philippines and other developing countries when it comes to climate change media representations. The Philippines is highly vulnerable to the impacts of climate change, Yusuf and Francisco (2009) arguing that unlike other Southeast Asia countries, the Philippines is exposed to many environmental disasters such as floods, landslides and droughts, along with tropical cyclones.

Australia has one of the most concentrated media markets in the world, with four major commercial media players (Lidberg, 2019). News Corp Australia and Nine Entertainment Co.

own more than 80% of the metropolitan and national print media markets (59% and 23% respectively) (Newman et al., 2022). This study will look at three of the main newspapers in Australia – The Australian, The Herald Sun, and The Sydney Morning Herald – the former two owned by News Corp and the latter owned by Nine Entertainment Co. In a paper by Speck (2010), it is stated that research on Australian media representations of climate change has shown that there is a strong relationship between media coverage and public opinion in Australia, which in turn influences political actors: “The general public sees the climate change debate through the “media lens”, that is, they see what the media choose to portray and as such the media seems to play a major role in the formation of public opinion,” (Speck, 2010, p. 125). Previous research into media coverage of climate change has looked a lot at how much various countries have covered climate change in the news media comparatively. Interestingly, Australia has been recorded to have covered climate change relatively heavily (Barkemeyer et al., 2017; Schäfer & Schlichting, 2014) in around 2008. Barkemeyer et al (2017) found that in the year 2008, Australian newspapers received the highest coverage levels across a sample of 41 countries from the Global North and south, with an average of 3.9 articles per newspaper issue: “On average every one of the seven Australian newspapers included in the sample contained almost four articles that referred to climate change in each newspaper issue throughout the year 2008,” (p. 1042). This has been disputed by other studies however, McManus (2000) suggesting that the cause of climate change and the effect of climate change were treated as two separate stories by the media, painting the picture that Australian emissions have not been the cause of environmental change. Furthermore, Billett (2010) found that in the Australian coverage of climate change, the scientific consensus of the issue was distorted such that the importance was reduced.

Meanwhile, the Australian economy is still heavily dependent on coal for domestic electricity generation and as an export commodity, meaning per capita, Australians are high contributors to climate change (Head et al., 2014). Schäfer & Schlichting (2014) discussed that while Australia is obliged under the Kyoto Protocol to limit emissions, its economy still relies on fossil resources, with climate change therefore driving a controversial domestic debate about climate change, impacting the political landscape and strongly influencing elections.

According to CCPI (2022), Denmark ranks 4th in the world in terms of reducing overall emissions, having in 2020 committed to a target of 70% emissions reduction compared with 1990 levels, and to climate neutrality by 2050. In terms of the media, there is a system in place whereby the Danish Competition Authority prevents any monopoly on the media (Terzis, 2008). Traditionally, the prime minister in Denmark is responsible for the free press (Terzis, 2008). It is therefore interesting to see whether the media seems to also project these ideals through the sources and frames used in the articles. The three newspapers used for this study are three of the most widely read broadsheets in Denmark and are all in the Danish language – Politiken, Jyllands Posten and Berlingske (Newman et al., 2022).

In the 2022 Environmental Performance Index, Denmark ranked number 1 on climate, as the Government has made a binding commitment to greatly reduce emissions by 2030 (Astor, 2022). At the same time, about two thirds of the country's electricity is from clean sources, and the capital Copenhagen believes it can reach carbon neutrality by 2025 (Astor, 2022). Wind energy has been hugely expanded, gas and oil exploration will end in the North, and are working to negotiate in other important sectors (Astor, 2022).

2.6 Framing theory

This thesis will use the theory of framing, to infer what meaning is being conveyed in the media discourse of climate change in different countries around the world. One of the most frequent definitions in the framing literature is of Gamson and Modigliani (1987, p. 143), who wrote that framing is the: “central organizing idea or story line that provides meaning to an unfolding strip of events,” (p. 143). This however, according to Entman et al. (2009), does not allow for consistent measurement in studies of framing. Entman (1993) focuses instead not on what framing is but rather on what it does, with another commonly used definition of framing, which 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,” (p. 52). Nisbet (2009) ties these definitions together, of which will be the definition hereby referred to in this thesis, writing: “Frames are interpretive storylines that set a specific train of thought in motion, communicating why an issue might be a problem, who or what might be responsible for it, and what should be done about it,” (p. 15). Entman et al. (2009) argue that using a definition that draws on functional specification allows analysts to use the theory, distinguishing framing from other concepts such as themes and arguments. Iyengar (1994) points to thematic frames, whereby broader trends or contexts of issues is emphasized, and found that audiences of thematic media coverage were more likely to be affected in such a way that they would make societal attributions such as blaming an issue on a particular theme such as economic hardship, or in this case, blaming climate change on rich countries. Entman (1993) denotes that the processes of framing happen at four levels: in the culture, in the minds of elites and professional communications, in the texts of communications, and in the minds of individuals. Frames though, are diachronic, in that how an issue is framed is

formed over time (Entman et al., 2009). The same objects, traits and words or language are used time and time again to invoke a frame, the authors argue, which in time promote an interpretation of an issue or actor and a particular desired response. Entman et al. (2009) argue that a frame is often accompanied by a moral judgment and emotional response.

The analysis of media content allows for researchers to discover the collectively shared frames of a given issue in a given society (Entman et al., 2009). This study will analyze the thematic frames in news texts on climate change through the use of sources. Framing in communication texts, according to Entman et al. (2009) “arises from networks of professional communicators who engage in framing, defined as selecting some aspects of a perceived reality and constructing messages that highlight connections among them in ways that promote a particular interpretation,” (p. 176). In the case of this study, framing of the news texts comes from both journalists, their system, and their sources, to highlight a particular aspect of climate change and promote a particular interpretation of it. Entman et al. (2009) argue that in newspapers which are party affiliated or government-owned, reporters and news editors often attempt to push a particular ideology. According to Scheufele (2006), journalists tend to favor information that is consistent with their journalistic frames, so that when there is incoming information, journalists apply the common frame to this information. In other words, journalists themselves see an issue in a particular light, before they even produce the information for audiences. As a consequence, write Entman et al. (2009), “frame-consistent information is more likely to be used for the construction of a news report than inconsistent information,” (p. 180).

The way a text, image, or other form of media is framed is very powerful in the way an issue is understood by audiences and therefore in shaping public opinion. In other words, citizens acquire their political knowledge not through personal experience but rather through the media

and actors the media portray. The media therefore “wield significant influence over citizens’ perceptions, opinions and behavior,” (Entman et al., 2009, p. 179). Frames in media and communication focuses on what is said by the news text or the speaker, for example how climate change is portrayed by elites (Entman et al., 2009). Frames in communication can have an effect on frames in thought, which focuses on what an individual is thinking, their value judgment of the issue, in this case climate change. Omission can also be taken into account in frame analysis, whereby some issues are highlighted and others are left out.

Frame analysis has become an important methodology, allowing the projection of an issue to be examined through images, languages, stereotypes and actors. There are multiple ways however, of extracting this data, broken down into four broad approaches (Entman et al., 2009). These include: A qualitative approach, a manual-holistic approach, a manual-clustering approach, and a computer-assisted approach. This study adopts a manual-holistic approach. This way of extracting data focuses on manually coding the frames of a text as holistic variables in a quantitative analysis (Entman et al., 2009). In this particular study, this will be done inductively whereby the frames are generated by a qualitative analysis of news texts and then coded as holistic variables in a manual content analysis.

Climate change is an issue that has been high on the news agenda, making headlines globally. The main source of information on climate change, and the various issues within it as well as the effects it has, comes through the media. The way climate change is framed is therefore very important, as it forms public opinion which influences government action and individual action. There are numerous factors that contribute to the framing of climate change in the media, from the organization of the media itself, the use of sources, the time constraints, and journalistic norms. In order for the impacts of climate change to be limited, and for sustainable

actions to be taken, the public needs to be educated and have consistent information on the phenomenon. It has been found, though, that media coverage of climate change, and the way it is framed, may be a contributing factor in awareness of climate change, the shifting of responsibility and therefore social inaction regarding behavioral change to be more sustainable (Areia et al., 2019). The messaging of uncertainty, in particular, has led to disengagement with the issue and lack of motivation to change personal behaviors (Happer & Philo, 2013). Happer and Philo (2013) conducted a study whereby they analyzed the way the media have constructed uncertainty around climate change and how this had led to disengagement in relation to possible changes in personal behaviors. They found that beyond recycling, most had not made conscious changes based on the concerns about climate change and their understanding of how important action was. What played a role in this disengagement, the authors found, was the sense of powerlessness, the feeling that individuals cannot make a difference, and that those in power cannot be trusted to make the right decisions for the greater good. Costs and convenience also played a part. The political game frame also contributes to an audience position of inaction (Kunelius & Roosvall, 2021). Kunelius and Roosvall (2021) state that as implications and causes of climate change come face to face with local economic and political interests, the framing focuses on the political game. This however, does not as may be expected, incite behavioral change in audiences, but rather, as the authors put it: “it can encourage audiences to get popcorn, sit back, and watch to see which combatant will win the battle between the nation-state representatives” (Kunelius & Roosvall, 2021, p.11). There is also much alarmism in the media coverage of climate change, which has been widely criticized (Kunelius & Roosvall, 2021, p. 11). However, “The spectre of inactivity, fatalism, and attempts to deny the sense of crisis have in some ways gained strength,” (Kunelius & Roosvall, 2021, p.11). The political

game frame and the argumentation within this that reaches the public, can be used to argue for delayed action, putting the nation's citizens and interests first. Kunelius and Roosvall suggest a solution for this. The framing should focus on the effects of climate change, they state, using "glocal" aspects and voices to strengthen the sense of common human identity to evoke environmental action. They coin this framing "global crisis framing", enhancing the urgency of actions directed towards mitigating the effects globally. Meanwhile, Nisbet (2009) says that to successfully reframe the issue, the underlying science must stay present in reporting, "while applying research from communication and other fields to tailor messages to the existing attitudes, values, and perceptions of different audiences, making the complex policy debate understandable, relevant, and personally important," (p. 14).

2.7 Gaps in the literature

Studies of climate change reporting have focused on industrialized, Western nations (Schäfer & Schlichting, 2014), yet the nations that are most affected by climate change have been largely overlooked by media scholars (Evans, 2016). While studies have looked at how frequently different countries have covered climate change, I aim to fill the gap by looking more at how it is covered, and by who, diving deeper into comparisons between Global North and Global South. This study was inspired by Murali et al, (2021) who looked at the relationship between sources and responsibility framing. This study, though, will broaden the exploration of frames, asking how climate change is framed in general by different countries, and thus how sources used in media coverage are framing the issue of climate change. This study will look at the main source used in each article, so will not analyze whether there is contestation between politician and

expert. However, it will, across the board, look at whether there's a variety of sources used, looking at whether in the larger picture of climate change as a topic, there is this contestation.

3. Methodology

This chapter will outline and detail the methodology of this study, which is a content analysis of newspapers from four different countries to understand meaning through framing and use of sources. Barkemeyer et al, (2017) argued that while in recent years the emergence of social media may have altered the agenda-setting function of broadsheet newspapers, they are still relevant agenda setters. Much of the literature on broadsheet newspaper coverage of climate change however tends to be centered on the UK. Stemler (2000) writes that content analysis is a technique for placing many words of text into fewer categories based on explicit rules of coding. It is a system whereby characteristics of a text - in this case newspaper articles - are objectively and systematically identified and used to make inferences of meaning. In this case the characteristics are the main sources that are quoted or referenced and the words used to describe the issue of climate change. Holsti (1968) said that content analysis was any technique for making inferences by systematically and objectively identifying specified characteristics of messages. Weber (1990) said that content analysis allows for us to discover and describe the focus of attention whether that be by individuals, groups, institutions or society. In this case, content analysis is used to discover and describe the focus of attention by the media on the particular topic of climate change. However, the content analysis will not be employed through looking at words in isolation, but rather contextualizing articles through looking at the most predominant frame.

There are six questions that must be addressed in content analysis (Krippendorff 1980):

1) Which data are analyzed? 2) How are they defined? 3) What is the population from which they are drawn? 4) What is the context relative to which the data are analyzed? 5) What are the boundaries of the analysis? 6) What is the target of the inferences? This section will aim to

answer these questions.

Firstly, the data that will be analyzed is from newspaper articles about climate change in the three major newspapers of four different countries around the world - India, Philippines, Australia and Denmark. Two of these countries are considered as part of the Global South, while the other two are in the Global North. The reason this study is comparing four different countries from both north and south is to look into whether there are differences in media source representation in different parts of the world, and whether this has any relationship to the way climate change is framed by the media. And as Anderson (2009) argues, comparative research is particularly necessary in climate change research. As well as this, much research into media representations of climate change is western-centric (Schmidt et al., 2013). As Schmidt et al (2013) argue, climate change is a global problem that nation states must play a role in, and thus cross-national comparative perspectives are highly valuable for the issue. Schmidt et al (2013, p. 1234) argue that comparative research in climate coverage is missing, and is particularly necessary in climate change communication. The same authors describe a type of strategy for comparative studies as “case-oriented”, whereby a small number of cases are compared in order to identify the specific set of factors responsible for the particular shape of the research object. This idea has been adopted in this study, looking at case studies - news articles from major newspapers about climate change - from different parts of the world to help identify what factors are responsible for shaping the way the divisive and globally important topic of climate change is discussed by the media, and whether the choice of sources is one of these. In the study by Murali et al., (2021) on media discussions of responsibility of climate change, the authors wrote that Asia, Oceania and Africa had a low representation in climate change and media literature, whereas Europe and North America had a much higher representation. India and the Philippines

were the countries chosen from the Global South as both are largely impacted by the effects of climate change, and both have large newspapers written in the English-language. India is a rising power, and contributes more and more to climate change despite growing vulnerability to climate change impacts (Thaker and Leiserowitz, 2014), while the Philippines, also a vulnerable country, has committed strongly to climate change mitigation, through the Climate Change Act of 2009 (De Leon & Pittock, 2017). Australia is part of the study as it is a Global North country which is seeing the impacts of climate change - flooding, reef bleaching and forest fires - yet has been politically controversial in its stance on action on climate change, the 2022 IPCC report identifying Australia's lack of policy direction a risk for the country (Slezak, 2022). Denmark was chosen for this study as while it is also a Global North country, its political stance is far more progressive than Australia's. However, the country is not itself seeing the devastating impacts climate change can have environmentally and socially. This allows for a comparison within the Global North countries, to see whether the patterns are the same or different in countries with different stances. In addition, the major newspapers are of course written in Danish, but as I have a grasp of the Danish language, this allowed for me to analyze a non-English speaking Global North country, allowing for more diversity in this study.

The study will analyze articles in three different newspapers in each country to allow for a broader sample, looking at the use of sources by journalists in different media companies. This allows for the study to analyze whether there are source use patterns within one country, or whether there are differences between media company. In India, the Philippines and Australia, the newspapers will be of the English language, as in both India and the Philippines these newspapers have a wide reach. The Danish newspapers will be in the Danish language, as the English-language newspapers in this country have a much smaller audience comparatively.

Ten articles from each newspaper will be chosen from 2021, to allow for a total of 120 articles analyzed. For the purposes of this research I wanted to ensure that there was no specific climate change event in the country that most of the ten articles were covering, as this may affect who the main sources were, so it was spanned over one year. The articles were found using *Factiva*, an online research tool that aggregates content, with key phrase “climate change” to be included in each article, in order to keep the study simple. Commentary/opinion was removed from the selection using *Factiva*, and articles chosen were 700 words or lower (except for The Philippine Daily Inquirer and The Australian where the average article had 700 or more words). No opinion or analysis articles were chosen to analyze, as the purpose of this research was to look into how climate change is represented in the “objective” news that audiences consume. The articles were listed by relevance, and the first ten articles that fit the criteria were chosen from the list. It was not possible to access Danish newspapers through *Factiva*, so *Infomedia*, a Nordic media intelligence tool which also aggregates content, was used. “Climate change” was the only term used in order to find out what topics were predominantly covered in each country and newspaper around this broad issue, to find out what aspect of climate change each country and newspaper focus on. The language in each article was analyzed to find out a) the main source used and b) the predominant frame of each article. There is often more than one source in news articles, so the analysis will look at what the “main” source was, in terms of which source was quoted or referenced first and most predominantly. A source is that which is either quoted or referenced.

In this study, framing will be scrutinized through the inferences made by the journalist - and the sources - in the texts analyzed. This will be done by looking at key words and specifically what the articles are writing about and whether the words used give a positive,

negative or neutral frame, and what aspect of climate change these words give meaning to (see Appendix). After analyzing each article, the frame categories were deducted based on what each article was about/what angle was chosen/how it had framed the topic of climate change. The categories for the purposes of this research did not fit into a common theory of framing categories (for example Hallahan, 1999), and so the frames were deduced based on the analysis of the language. For example, an article in The Philippine Star read in the first line:

The Philippines has proposed that governments and multilateral development banks (MDBs) work closely together in addressing the transitional adjustments that might have to be undertaken by the concerned sectors to ensure the seamless implementation of climate-related projects on the ground. (“Philippines seeks sound execution of climate-related projects” 2021).

Here, the language used is writing about climate change as something that is in need of action against it. Using the words “ensure” and “seamless implementation” suggests that this article is in favor of action against climate change, which thus determined the frame. After analyzing the language in each of the articles, the categories then became: a) Climate change impacts are taking place or impending, and action is needed now, focusing mainly on environmental or social effects; b) Political action against climate change is taking place and this is welcome, whereby the article framed the action in a positive light; c) Climate change is an economic or political issue or nuisance, whereby it is occurring in the political realm and no action is prescribed; d) wealthy countries are to blame for climate change and/or poorer countries are more vulnerable to its impending impacts; e) Climate change is a global, newsworthy issue, taking place in the international realm; and f) climate change could have positive impacts. This last frame was only used once and so was removed from the analysis.

Therefore, a mix of quantitative and qualitative content analysis was adopted, whereby the numbers were used to understand what the most predominant and least predominant sources and frames were in each newspaper in each country, while the quotes and text were analyzed quantitatively to understand the frames implied and the inferences and underlying assumptions (perception of climate change in the media). This is similar to Das (2019) which analyzed the sources and frames in environmental justice in Bangladesh.

The articles were then coded as to what sources were used under the categories, which were categorized inductively. All the different main sources were first taken note of, and were then put into slightly broader categories of: a) politician, political body and/or political action plan; b) official report and/or document whereby the research was taken out by said institution or organization; c) researcher/scientists/analyst/academic; d) non-government organization; e) financial institution; f) court/legal body; g) celebrity/public figure; h) business and/or company; i) ordinary person/citizen/activist; j) other newspaper/media outlet. The frequency of each source and each frame was then calculated against the newspaper and country to look at the patterns. These categories of sources and frames were then compared to discuss how the media coverage of climate change in general is voiced and framed. This was done by looking at patterns between sources and frames, analyzing which sources were accompanied by which frames and vice versa.

Consumers and politicians alike are under pressure from society and populations to act according to the science, and to make changes - whether this be political or individual. The story of climate change is a story dictated by the media, as this is where most individuals around the world get their information from. It is a divisive and complex topic and has left many feeling conflicted as to how to act, and who to vote for. Governments around the world are making

decisions that are contradictory with one another and with science, and this is again funneled through the media to populations. It is therefore relevant to ask the question of who the media is telling the story through, i.e. their most used sources (in categories), as this shapes how the story is told, what issues are brought to the forefront of societal attention and affects how individuals and governments believe they should act.

This study of course has limitations. Data will only be drawn from four different countries, will mainly analyze English-speaking media, and will only analyze broadsheet newspapers. Furthermore, the data from one country will be in a different language to English, that being Danish, of which I am not entirely fluent in. While I had help to translate, I believe my knowledge of the language is enough to look at keywords and sources, but this may be seen as a limitation. This study will not look at what sources are most prevalent in social media, in TV news or in radio (or other types of media such as documentaries). While all of these newspapers are accessible, and widely read on the internet, the study is limited in its scope in this sense. Content analysis includes the analysis of words and is therefore relatively subjective, despite what authors have said regarding content analysis. While the identification of source has been objective, the frame and angle found in each article may have fallen victim to some level of objectivity. Additionally, this study looked at the main source and the main frame in each article, but did not look at any secondary sources or frames. Some may argue that news articles often include not just one frame, but few.

I would also like to note that while objectivity is of course the aim, I would argue that it is difficult in content analysis, or at least with the analysis of text, to be entirely neutral in our way of analyzing it. Therefore, when the content analysis was conducted for this particular study, frames were decided on by what given aspect or angle of climate change was described through

negative, positive and neutral words and connotations.

This study aims to find out which voices are the most prominent in media projections of climate change across these countries, which further aims to give a relatively broad understanding globally. It aims to find out who - or what trends - is providing the information to the media on climate change and therefore from whom audiences are receiving the most information. While this study looks at media, and not audiences, audiences are of course part of this study in the sense that audiences consume information about climate change through the media. The target of these inferences are therefore media researchers and media practitioners to understand who the media is giving the loudest voice to, and to then analyze whether or not this is the “right” or the “best” way. As it is a scientifically based issue which has caused much division across the world between governments and between individuals, it is important that the media are considering who their sources are and what impact this might have.

4. Results

4.1 Sources used country by country

Table 1

Number of sources used in each newspaper

Newspaper/Source	Politician	Expert	Financial body	Report	Activist/ordinary person	NGO	Business	Newspaper	Legal body	Celebrity
Times of India	4	4	0	2	0	0	0	0	0	0
The Hindu	4	3	0	2	0	1	0	0	0	0
The Hindustan Times	8	1	0	1	0	0	0	0	0	0
Total India	16	8	0	5	0	1	0	0	0	0
The Australian	5	0	3	2	0	0	0	0	0	0
Sydney Morning Herald	4	1	3	1	0	0	0	0	1	0
Herald Sun	3	2	4	0	0	0	0	0	0	1
Total Australia	12	3	10	3	0	0	0	0	1	1
Philippine Star	3	0	4	2	0	0	1	0	0	0
Manila Bulletin	10	0	0	0	0	0	0	0	0	0
Phil Daily Inquirer	5	0	1	2	1	1	0	0	0	0
Total Philippines	18	0	5	4	1	1	1	0	0	0
Jyllands Posten	2	4	0	2	0	1	1	0	0	0
Berlingske	2	2	1	2	2	0	0	1	0	0
Politiken	0	4	0	2	1	1	0	1	1	0
Total Denmark	4	10	1	6	3	2	1	2	1	0
Total All	50	21	17	18	4	4	2	2	2	1

As seen in Table 1, all three of the Indian newspapers mainly used politicians or political figures/bodies as their main source. This was especially the case with the Hindustan Times, whereby eight out of 10 of the articles used politicians as their main source. In total, 16 out of 30 of the articles mainly sourced politicians. At the same time, when politicians were not the main source in each of the Indian newspapers, they sourced researchers or reports. Eight of 30 of the articles sourced researchers, while five sourced reports. No financial institutions were used as primary sources, and no ordinary people or activists were used as sources.

In the Australian newspapers, the most predominant source was also politicians, with 12

out of 30 of the articles using politicians as their main source. Ten out of 30 however were financial sources, while only two out of 30 were researchers. None of the articles sourced ordinary people or activists. There was also no use of NGOs. One Australian newspaper, the Herald Sun, used Prince Charles as a source, but this was an outlier for Australian coverage.

The newspapers in the Philippines also used predominantly political sources, with the articles from the Manila Bulletin only using political sources (10/10). The trend was more mixed in the Philippines though, whereby there were five different source types used by the Philippine Daily Inquirer, including an activist and an NGO. While 18 out of 30 of the sources were political, zero out of 30 were researchers/scientists.

Denmark was the outlier in terms of source use, whereby there were at least five different source types in each paper, including ordinary people (three out of 30). There were far less political sources used, only four in 30, and 10 out of 30 were researchers. Politiken used no political sources. Six out of 30 were based on reports and only one article out of the 30 used a financial source.

Overall, it seemed that the newspapers (bar Denmark) tended to source politicians when reporting on climate change, suggesting that climate change is a mainly political issue in these three countries. At the same time, most newspapers tended to source ordinary people and citizens seldomly, and all countries except Denmark tended not to source researchers - the main source of knowledge of climate change - as their main sources.

4.2 Frames country by country

Table 2

Frequency of frames used in each article

Frame/Newspaper	Action needed	Action welcomed	Political/economic nuisance	Rich nations responsible	International diplomatic issue
Times of India	7	2	0	1	0
The Hindu	5	3	0	1	1
The Hindustan Times	2	3	0	3	2
Total India	14	8	0	5	3
The Australian	0	0	7	0	3
Sydney Morning Herald	3	0	7	0	0
Herald Sun	2	0	7	0	0
Total Australia	5	0	21	0	3
Philippine Star	3	3	1	3	0
Manila Bulletin	3	7	0	0	0
Phil Daily Enquirer	6	1	0	2	1
Total Philippines	12	11	1	5	1
Jyllands Posten	5	1	1	0	3
Berlingske	6	2	0	0	2
Politiken	7	1	1	0	1
Total Denmark	18	4	2	0	6
Total All	49	23	24	10	13

The frames identified in each of the articles were broken down into five main categories: a) Climate change impacts are taking place or impending, and action is needed now, focusing mainly on environmental or social effects - coded as “action needed”; b) Political action against climate change is taking place and this is welcome, whereby the article framed the action in a positive light - coded as “action welcomed”; c) Climate change is an economic or political issue or nuisance, whereby it is occurring in the political realm and no action is prescribed - coded as “political/economic nuisance”; d) wealthy countries are to blame for climate change and/or poorer countries are more vulnerable to its impending impacts - “rich nations responsible”; e) Climate change is a global, newsworthy issue, taking place in the international realm - “international diplomatic issue”.

As seen in Table 2, in India, almost half of the total articles were prescribing action against climate change, fitting into the “action needed” frame. In The Times of India, seven out of 10 of the articles were of the “action needed” frame. The Hindustan Times showed more of a mix, whereby only two of the 10 articles were prescribing action, while three were welcoming

current actions (“action needed”), and three were framing climate change as a responsibility of rich nations. Overall, eight out of 30 articles were welcoming current actions, five were painting rich nations as responsible and zero were painting it as a political/economic nuisance. In each of the newspapers there was at least one article that shifted the blame to rich nations.

In Australia, 21 of the 30 articles were presenting climate change as a political/economic nuisance, whereby climate change was seen as an issue that politicians or financial bodies did not want to deal with or did not know how to deal with. Five of the articles were prescribing action (“action needed”) and none of the articles talked about any current actions as welcome. In each of the newspapers, seven out of the 10 talked about climate change as a political/economic nuisance, and one of the Herald Sun articles suggested climate change could have positive impacts (specifically on growth of crops in the south of the country).

In the Philippines newspapers, 11 out of 30 were welcoming current actions (“action welcomed”), 12 were prescribing action (“action needed”), and only one was painting climate change as a political/economic nuisance. Five of the articles represented climate change as an issue rich nations are responsible for, the same as the Indian newspapers. In The Philippine Star the framing was more mixed, with three as action needed, three as action welcomed, three that rich nations are responsible - and poor nations are vulnerable - and one that climate change is a political nuisance. The Manila Bulletin and the Philippine Daily Inquirer however were more focused on the two frames of action, where the Manila Bulletin had three articles framing climate change as an issue that welcomes current changes, and three that action is needed. The Philippine Daily Inquirer had six articles prescribing action, one welcoming action and two shifting blame to rich nations.

In Denmark, 18 of the 30 articles were prescribing action, while only two framed it as a

political/economic nuisance. Six of the 30 articles were describing climate change as a international diplomatic issue, with a neutral frame, and four of the 30 articles were welcoming current actions. In all three of the newspapers the frames were mixed, while leaning more toward the action needed frame.

4.3 Relationship between sources and frames

In two of the Indian newspapers, there was a trend that all of the articles that used a researcher as the main source had the action needed frame. Two of the newspapers (different pairing) also had a pattern whereby all the frames welcoming actions were using politicians as the main source. However, as the main source in most of the newspapers were politicians, this may not be so significant. Action needed was also a predominant frame, suggesting the relationship between researcher and frame is null.

In two of the Australian newspapers, all articles that had a political or financial source as the main source had a frame that climate change is a financial/political nuisance, showing that politicians and financial bodies in Australia tend to see climate change as an issue in this light, and/or that the media tend to focus on this theme. In the Sydney Morning Herald, three of the frames were prescribing action, and the sources were either NGO, report or researcher. This shows that in Australian newspaper media, when politicians are used as the main source, they tend not to frame climate change as something that requires action. In The Australian, the frame of political/economic nuisance came from a range of sources.

The Philippine Star tended to show a relationship between source and frame, where when a politician was sourced, the frame was that rich countries are responsible. At the same time, when the action needed frame was the main frame, it came from a financial source, and when a report was used as the main source the frame was that current action is welcomed. All ten of the

Manila Bulletin articles had politicians as the main source, and the frame was either that action is needed or that current action is welcomed. In the Philippine Daily Inquirer however, there was no clear pattern between source and frame. In the Philippines overall, the main sources used were politicians and the main frames were that action is needed or action is welcomed, showing the overall perception of climate change in The Philippines media.

In Denmark, it was shown that while the most common frame is that action is needed, this was accompanied by a number of different sources. This again shows the overall perspective of climate change in Danish media, to be discussed further below.

By analyzing the patterns between source and frame, when political source was controlled for there was no correlation with frame. This suggests that while politicians are the most commonly used source, this is not necessarily what is driving the way climate change is framed in the media. However, when controlling for expert/scientific sources, almost always the frame is that action is needed.

Table 3

Frames controlling for expert/researcher source

	Expert as source	Action needed	Action welcomed	Rich nations responsible	International diplomatic issue	Good news
Times of India	4	4	-	-	-	-
The Hindu	3	3	-	-	-	-
The Hindustan Times	1	1	-	-	-	-
The Australian Sydney Morning Herald	0	-	-	-	-	-
Herald Sun	1	1	-	-	-	-
Philippine Star	2	1	-	-	-	1
Manila Bulletin	0	-	-	-	-	-
Philippine Daily Inquirer	0	-	-	-	-	-
Jyllands Posten	4	3	1	-	-	-
Berlingske	2	2	-	-	-	-
Politiken	4	3	-	-	1	-

Note: Number under "Expert as source" is out of 10 newspaper articles

Table 3 shows that when the source in each of the articles was controlled for expert/researcher, in 18 out of 21 of the cases, the frame was “action needed”. This suggests that experts and researchers in climate change are, when speaking in the media, voicing climate change as something in need of action. However, as there were a total of 49 “action needed” frames, this shows that it is not just up to researchers to frame climate change in this way in the news media across the four countries.

It must be noted here that while this thesis has attempted to look at the relationship between source and frame, the sample size is too small to calculate for correlation. However, as there is not much research that looks at the correlation between sources and frames in newspaper articles about climate change in both Global South and Global North countries, the patterns that look at the relationship between source and frame here could help to break into the field to see if something might be there for further research. This study is an attempt to see the relationship between source and frame, but a more complex study could be conducted to build upon the findings of this project.

4.4 Overall findings

Across the newspapers, the most common source used was politicians or political bodies (50 out of 120), followed by researchers/experts (21) and then reports (18). The most common frame was that action is needed (29 out of 120), followed by climate change being a political/economic nuisance (24) and action welcomed (23).

Overall, The Philippines had the most political sources (18 out of 30) but followed by India (16) and then Australia (12). Denmark brought the total number down by only having four political sources. Denmark had the most action needed frames, followed by India, then the Philippines and then Australia. Australia led with the political/economic nuisance frame, while

the three other countries had this as a much less predominant frame.

As can be seen in Table 1, ordinary people are rarely used as predominant sources in coverage of climate change in all countries, in fact none of the newspapers analyzed in India or Australia used ordinary people as a main source, suggesting that climate change is very much a political issue which is difficult or not necessary to personalize. This goes against the journalistic norms of personalization in news that was discussed in the theoretical framework. The sample of Danish articles however had three which sourced ordinary people as the primary source.

The use of reports seems to be quite consistent across the countries, suggesting that reports don't suggest a bias or a way of seeing or perceiving climate change, but are rather used as a source to give newsworthiness or factual context. In this study, a report is defined as research that has been carried out by any institution or organization and published for the purposes of information. In Denmark, each time there was a report as the main source, there was a frame of action needed, but this doesn't come up in the other countries strongly.

While Denmark and Australia both didn't take responsibility for climate change in their media coverage, they differed in the way they prescribed action and represented climate change. Denmark framed climate change as an issue that requires action, while Australia did not. Denmark and Australia were also similar in the fact that they framed the articles welcoming current action less when compared to India and the Philippines. So while Danish media seems not to frame articles based on what action is currently taking place to combat climate change, it still denotes that action is needed against climate change. Australia however, tended not to frame climate change to do with action - either needed or welcomed - suggesting that the Australian media keeps the topic very much within the frame of how it is impacting politics and economics domestically. While 70% of the articles analyzed by Australian media framed climate change as

a political or economic nuisance, this was a very rare frame in all three of the other countries. At the same time, about two thirds of the sources used by the Australian newspapers were either financial bodies or political sources, and only 1/10 of the sources were researchers. The Philippines newspapers also did not use researchers as sources (zero out of 30), and mainly used politicians, but predominantly framed the topic as something that requires action. This shows that while Australia and the Philippines had relatively similar source patterns, their framing was significantly different.

India and the Philippines were similar in that the action needed frame was the most prevalent (closely followed behind by action welcomed in the Philippines). They also tended not to frame climate change as a political/economic nuisance. Both India and the Philippines used political sources predominantly, but while India often used researchers in their articles, The Philippines did not. This suggests that while both India and the Philippines frame climate change as something in need of action, there's no need for researchers or experts to incite this frame.

5. Analysis and Discussion

This thesis aimed to answer the question: What sources are predominantly used in newspaper media coverage of climate change across the world - in India, the Philippines, Australia and Denmark - and how are these same articles framed? This study was interested in finding out who the media gives a voice to in the topic of climate change, therefore who is informing the public, and how the issue is generally framed. The study aimed to find out whether there are differences in source use and framing of climate change between the Global South and Global North, as the Global South tends to be more vulnerable to the impacts of climate change. It also aimed to look at the patterns overall, to see if there is a global tendency. No conclusions can be drawn from this study, as data from only four countries and from only 120 newspaper articles were analyzed. However, it aims to give insight into what sources and frames are being used across the world, opening up for further research.

It can be said, based on the above data, that there is no clear relationship between politicians as a source and framing of climate change in media coverage across these four countries analyzed. Politicians tend to be the main sources used by the media in both the Global South countries of this study and in one of the Global North countries, while climate change is most often framed as an issue requiring action (Australia as the outlier). The former however, has no strong relationship with the latter. However, it seems as if when an expert or scientist is used as a source, the article frames climate change as that which requires action.

This discussion therefore, will explore the politicization of climate change across the

world, and how it is being framed by the media. It will then break down the use of sources and frames country by country.

5.1 Politicians as the main source

Politicians and political bodies are mainly telling the story of climate change in newspapers in India, the Philippines and Australia. Even though climate change is an issue defined and explained by science, it has bled into many other areas of society and culture, and is a highly political issue. While one in six of the articles in this study were told through the voice of scientists and/or researchers, almost half (50 out of 120) were told by political voices.

As discussed in the literature review, this is not the only study to find that government and other political sources tend to be used primarily in climate change media coverage. To bring back the study of Takahashi (2011), media coverage of climate change in Peru found that the journalists mostly focused on government sources, and at the same time tended to use frames of “effects” and “solutions” rather than “policy” and “science”. This is similar to this current study, in that politicians were the main source used, while “action needed” and “action welcomed” were the main frames (as the “political/economic nuisance” frame was dominated by Australian media). Action needed and welcomed are similar to the frames of “effects” and “solutions”. Takahashi (2011) argued that the common frames were attached to the interests of politicians. It could therefore be argued that while climate change has become a highly politicized issue in the media, the conversation is around the impacts of climate change and how to act against it.

In terms of journalistic norms, the debates around issues in society in the media should be based on credible information from multiple sources, achieving this through interviewing and referencing expert sources (Takahashi et al., 2017). It is now evident though, that journalists are using government and political sources as primary sources in the debate around climate change,

suggesting that politicians are the experts on what should be done politically in response to the impacts and issues of climate change. Traditionally, scientists are the expert sources in the discussion of climate change, but perhaps we are seeing a shift. Murali et al (2021) though, argued in their study about responsibility frames and expert sources in media coverage of climate change, that science-based reporting allows the narrative of climate change to be factual, and can help combat “fake news” related to climate change. The media should be careful then, in a holistic sense, as focusing mainly on political understandings of climate change can obscure how the country sees its own position in the contribution to and mitigation of climate change (Murali et al., 2021).

However, this study shows, through the analysis of framing, that there is not so much contestation between sources, that no matter what the source is, the frame predominantly (at least in India, the Philippines and Denmark) says that climate change is in need of political action.

5.2 Framing climate change as something in need of action

Meanwhile, the topic of climate change is mainly represented as something that is in need of action against it (49 out of 120 articles). This suggests that most politicians when speaking about climate change and policies internationally and/or domestically see climate change as a threat, and see it as something that requires action. Furthermore, politicians around the world believe that climate change exists and believe that they have the power to do something about it, if they act now. It is interesting however, that the framing of climate change is about what should be done, rather than what is being done. There may be a few reasons for this:

1. Alarmism is more newsworthy than positive news

2. Politicians are only now starting to listen to the science
3. Climate change is an issue where “something will always have to be done”, rather than any true changes being seen.

Harcup and O’Neill (2017) in a revised study of news values, found that across UK newspapers, “bad news” was the most commonly identified news value. While it does not specifically refer to climate change, it can be argued that “action needed” against climate change comes from the news value that climate change is bad news, and something must be done. Good news however, was identified far less often (Harcup and O’Neill, 2017). Hence, perhaps climate change is framed as something that is requiring action more than it is something having received action, as alarmism, or bad news, is more newsworthy than good news or completion.

The second suggestion is that politicians are only now starting to listen to the science, or perhaps that we have only started to see the alarming impacts of climate change. Confirming this is beyond the scope of this research study, but further research could look into whether this framing is occurring in other countries around the world and whether this is a more recent frame. Thirdly, I suggest that climate change, when framed in the media, is an ongoing issue, and will continuously be framed in terms of political debate and action.

However, many articles in this study framed climate change as an issue that welcomes current actions (23 out of 120). Interestingly though, this frame is far more prominent in India and the Philippines than in Australia and Denmark. While the frame of economic/political nuisance is more prevalent in the study overall, Australia makes up for 21 of these frames out of the 24. Further research could explore whether Global South countries are more likely to frame climate change in terms of solutions and to include news of implemented action against climate change than Global North countries, and why.

5.3 Framing country by country

There were quite a few notable differences in the framing between countries, as well as between Global South and Global North. Firstly, while the “action needed” was the most prominent frame in the samples from India, the Philippines and Denmark, it was not nearly as common in the Australian news samples. As outlined in the literature review, while Australia has been found to quite heavily cover the topic of climate change (Barkemeyer et al., 2017; Schäfer et al., 2014), the media has not represented Australia as being responsible for climate change (McManus, 2000; Murali, 2021) and the cause and effect of climate change tends to be separated by the media (Billett, 2010). At the same time however, the ownership of Australian newspapers is rather concentrated, and all three of the newspapers in this sample tend to have reputations of being more center-right leaning. This both tells us something about Australian media, that the broadsheet newspapers are framing climate change as something that is causing havoc for the financial industry and for politics, and not necessarily that it is something requiring action, as well as being a limitation of this study. It would be useful for the understanding of media framing of climate change to analyze TV news pieces for example in each of the countries.

It is still worth noting however, that readers of these broadsheet newspapers in Australia are receiving a different message about the nature of climate change and the issue of climate change than those reading the major broadsheet newspapers in India, the Philippines and Denmark.

In India, the major frame was “action needed”, well above the frequency of the “action welcomed” frame. Meanwhile in the Philippines, there were almost as many “action welcomed” frames as “action needed” frames. Both of the countries however, showed a clear dominance of

frames around action, suggesting that the politicians in each country, and/or who the media chooses to interview see climate change as something with impending impacts, requiring immediate action. Denmark, though, was the country where the media framed climate change as something requiring action most frequently - 18 out of 30 as opposed to 14 (India) and 12 (the Philippines) out of 30. As outlined in the literature review, Denmark is a highly progressive country in terms of climate change action politically. It could be worth exploring however, whether other wealthy European countries with progressive policies on climate change and a strong culture of free press also have similar framing patterns in their media coverage of climate change. At the same time, the articles analyzed in the three Danish newspapers included the highest number of expert sources (10 out of 30) and only four out of 30 were political sources. This suggests that in Denmark, while climate change is obviously a political issue, the media still tries to give more of a voice to experts on the topic than politicians. Further research could look into whether there is a pattern of this in other Scandinavian/wealthy European countries.

While the Philippines newspapers sourced mainly politicians, and framed climate change as something either needing or welcoming change, scientists were not at all used as a source. So therefore while this study finds that when sourcing an expert, the frame tends to be that action is needed, the Philippines clearly doesn't require a scientist or expert to frame the issue this way.

It was discussed in the literature review, that journalists often want to personalize a story, adhering to the news value of human interest, adopting the idea that news is more consumable and relatable if it is about individuals and personalities rather than group dynamics or social processes (Boykoff and Boykoff, 2007). However, the results of this study have shown otherwise. The results of this study instead show that climate change is not a story of individuals,

it is not a story where personal drama is newsworthy. Climate change is instead a story affecting societies, cultures and political bodies.

6. Conclusion

This study aimed to continue a deep exploration of media coverage of climate change around the world, in a global society riddled by its impacts, its causes and its mitigation. By looking at newspaper articles from 2021 from the major broadsheet newspapers in two Global South countries and two Global North countries, this study intended to look at the similarities and differences between Denmark, Australia, India and the Philippines, to find out what effect the use of sources in media coverage of climate change is having on the way the issue is framed, and how this differs between Global South and Global North, and individual countries. By analyzing each article for sources and frames, this study found that there is no clear pattern showing a relationship between source and frame, except that expert sources tend to come with a frame prescribing action - but that politicians are the most commonly used source in India, the Philippines and Australia. This suggests that climate change has become a highly politicized issue in countries which either rely on fossil fuels for the economy or are being imminently threatened by the impacts of climate change. Further research into this could conduct a broader study, analyzing the use of sources in other countries around the world, in economies that both rely on and don't rely on fossil fuels, and in countries that are both being currently impacted and are not currently impacted by the effects of climate change.

While according to this study, the use of politicians as a source does not have an effect on the framing of climate change in each country - as political sources came with a range of frames in each country - climate change is mainly being framed as requiring action. This is at least the trend in all countries bar Australia, which framed climate change as a political or economic

nuisance, an issue which is causing havoc in the financial industry or political realm. This frame did not include a prescription or welcoming of action. Climate change in India, the Philippines and Australia has become a highly politicized issue, where when climate change is talked about in the newspapers, it is often because a politician has said or done something. And in India and the Philippines, it is when a politician either wants action, or welcomes current action.

This study confirmed the results of other studies about source use in media coverage of climate change, which is that expert sources are seldomly used in coverage of climate change (bar Denmark, where they were the most commonly used source). When they are used though, the article in which they are the main voice frames climate change as something requiring action. To remind us of what framing is, Nisbet (2009, p. 15) wrote: “Frames are interpretive storylines that set a specific train of thought in motion, communicating why an issue might be a problem, who or what might be responsible for it, and what should be done about it.” It could be argued that the results of this study are relatively positive, in that while climate change has become a highly politicized issue, the framing tends to warrant action. This means that many audiences around the world are reading about climate change not as something rife with skepticism, but rather something that leaders know to do something about. On the more cynical side though, it could mean that it is an issue endlessly requiring action. This feeds into what Nisbet (2009) wrote about the news coverage of climate change, that the complexity of the issue, and its relative lack of immediate, visible impacts, means that the urgency of it is too often dismissed.

The research question of this study was: *What sources are predominantly used in newspaper media coverage of climate change across the world - in India, the Philippines, Australia and Denmark - and how are these same articles framed?* The results show that politicians are the predominant source used in newspaper media coverage in three out of the four

countries analyzed - India, the Philippines and Australia- but that this seems not to correlate with how the issue is framed. The outlier in this particular case study being Denmark, which predominantly used scientific sources. In a different combination, in three out of the four countries - India, the Philippines and Denmark - climate change is framed by newspaper media to be an issue that requires action, the outlier in this instance to be Australia, which framed climate change as a political and/or economic nuisance, causing havoc to the financial industry or political field. This suggests that while Global South countries which are more vulnerable to the impacts of climate change see the topic as something impending and desirous of change, Global North countries can differ in their way of framing and sourcing the issue. Of course, this sample size is too small to make a generalization, but it begins to fill the gap in the literature to look at the relationship between source and frame in a comparison of Global North and South countries. The literature has told us that scientific expert sources are used less in media coverage of climate change, and it has told us how frequently different countries cover the topic. Some studies have also looked into how different countries frame the responsibility for climate change. This study opens up various other directions of study, which could explore further the differences in media coverage of climate change between North and South, and why some countries choose to source scientists more than others. As this research has found that Australian newspapers tend not to incite action against climate change, further research could more deeply explore this, and how media ownership impacts the way this issue is seen and how it then affects domestic politics and Australia's foreign affairs. Other studies could look into the politicization of climate change, and find out whether the frame of action needed is ongoing. This could then further explore whether climate change is a topic forever requiring action, disproportionate to how much it receives.

While warnings like those from beloved documentary makers such as David Attenborough ring through global society to cause alarm and incite action, it is the news media that forms the everyday understandings of life and society, and how we as individuals should best react to it. Studies like this allow us to better understand the mechanisms of the news media, and with a growing body of literature in this area, we can hopefully steer journalists and the media industry towards best practice, to prepare a world facing such impactful and anthropological phenomena like climate change.

1. Introduction8

7. References

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9. Appendix

Article from the Philippine Star to show how framing and sources were highlighted



HD COP26 conference 'nothing but an emission of hot air'

BY Delon Porcalla

WC 549 words

PD 17 November 2021

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LP

MANILA, Philippines — It was apparently all talk, with no concrete action.

Officials and members of the House of Representatives have expressed disappointment over the recently concluded 26th Conference of the Parties (COP26) to the UN Framework Convention on Climate Change held in Glasgow, Scotland which apparently ended with nothing but mere rhetoric.

TD

"Let us all be reminded again of what needs to be done for our home, our planet. Let us end the procrastination and apathy now," House Deputy Speaker Loren Legarda an environmentalist stressed.

The Antique congresswoman earlier warned that Southeast Asia, and not just the Philippines, may soon suffer from a "looming food crisis" brought about by constant changing weather patterns as a result of climate change.

In a privilege speech last week, Legarda raised the specter of a massive decline in food production due to "extreme weather events" in developing countries in this part of the region.

"We have a looming food crisis. Food production around the world will suffer as global heating reaches 1.5 degrees Celsius. Already, the increased heat and humidity are harming crops and livestock, with droughts and floods wiping out harvests as well," she cautioned.

The former senator made the remarks in relation to the eighth anniversary of Super Typhoon Yolanda and shortly after COP26.

For his part, Rep. LRay Villafuerte – another advocate for the environment – lamented that two-week COP26 "turned out to be another meeting full of rhetoric but sorely lacking in action."

"It seems the meeting was just an elaborate talkfest that was nothing but an emission of hot air. The gathering just contributed to planet heating," the Camarines Sur congressman observed.

COP26, which ran from Oct. 31 to Nov. 12, was expected to come up with concrete measures on how developed economies can fulfill the \$100-billion financing per year they had pledged to developing countries for climate projects, and clear-cut commitments on how quickly each nation would reduce their carbon footprints over the next decade.

But no such firm actions and commitments resulted from the two weeks of negotiations during the conference.

Villafuerte said he hoped that COP26 would be devoid of empty talk and would at last lead to concrete action among countries to fight climate change.

"Commitments should be backed up by actions as these are crucial for developing countries like the Philippines, which bear the brunt of the consequences of climate change even if they account for just a tiny portion of the world's emissions of greenhouse gases largely responsible for global warming," he said.