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Feasibility Framing: Media Responses to the 2018 Intergovernmental Panel on Climate Change Special Report

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Feasibility Framing:
Media Responses to the 2018 Intergovernmental Panel on
Climate Change Special Report

A Senior Honors Thesis

Submitted in Partial Fulfillment of the Requirements for Graduation in the Honors
College

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Introduction:

With an associated warming of 0.85°C documented between 1880 and 2012, climate change has altered the frequency of extreme weather events, contributed to rising sea level, impacted biodiversity, and has become a growing concern (Allen et al. 53). Created in 1988, the Intergovernmental Panel on Climate Change (IPCC) compiles research on climate change for the use of policymaking. While the IPCC targets policymakers, the public generally learns science through media outlets (Schmidt et al.). On 8 October 2018, the IPCC released a special report titled, “Global Warming at 1.5°C.” Media outlets quickly responded to this report.

Impacting public perceptions of a critical environmental issue, the framing of climate change within media outlets is important (Brüggemann and Engesser). For the purpose of this analysis, I will use Ford and Kings’ definition of framing as “the process by which broad organizing themes are selected and emphasized, elements of a story such as the scenes, their characters and actors are emphasized, and supporting documentation used” (138). Through the modification of public perception, framing affects how policymakers respond to climate change.

The IPCC report, unveiling the current and possible future state of our world, strongly urges a 1.5°C limit on climate change. To give perspective, the Paris agreement, an ambitious, groundbreaking, international legal document signed in 2016, sets a 2°C limit. Offering unique source material, the IPCC report encompasses global impacts and is involved in international policy making. The IPCC is also the primary expert organization on climate change.

My research evaluates the acceptance and framing of a scientific document in the mass media. In 2015, researchers studied frames in media responses to the IPCC Fifth Assessment Report (O’Neill et al.). This is, to the best of my knowledge, the only other study focusing on the

public presentation of a specific IPCC publication. With the exception of one outlet, current media sources accepted climate change as a threat to human society, employing environmental, economic, and political frames to emphasize issues associated with a warming world. However, many articles also questioned the feasibility of limiting warming to 1.5°C, clashing with IPCC research and recommendations. This has the potential to decrease citizen reactions to limit warming along with policy responses. Through the use of environmental and empathy-inducing frames, news articles cater towards liberals, or left-leaning readers, shifting climate change blame, creating tension between political parties, restricting the potential for future bi-party cooperation. Although acknowledging climate change as a threat to the environment and human society, media outlets, challenging the IPCC's credibility and authority, discourage positive readership behavioral changes by emphasizing the infeasibility of limiting warming to 1.5°C.

Methods:

News articles were found by inputting “Climate change AND IPCC,” “Intergovernmental Panel on Climate Change,” and “IPCC report” on Google’s search engine. Only materials directly mentioning the IPCC report were analyzed. Minimizing analyses to preliminary responses, only sources published between 7 October 2018 and 31 October 2018 were used. Editorials and opinions are excluded from this study, since these articles are notorious for having different political leanings (“Media Bias Rating”). Through the observation and inspection of language use and thematic similarities within and among materials, articles were read and analyzed.

The University of Michigan has listed AllSides, a news website, as a resource for evaluating media bias (“Fake News”). AllSides Media Bias Rating utilizes a patented bias rating system to place news sources into five separate categories: left, lean left, center, lean right, or right (“Media Bias Rating”). According to AllSides, lean left sources tend to favor governmental involvement, focus on human rights, and adopt empathy as a guiding principal. Lean right supporters discourage governmental involvement, value economic profiting, and are resistant to change. Each rating offers a confidence level and has ongoing community votes in agreement or disagreement with the label. The ability to check citizen input and assess confidence levels makes AllSides the optimal tool for determining news sources’ leanings.

I will primarily investigate central sources, or outlets that do not predictably show favoritism to right or left positions. Sources are selected based on circulation. *USA Today* and *The Wall Street Journal* are in the top twenty-five online news providers (Mitchell and Rosenstiel). One article was found fitting the search criteria for each outlet. BBC News was also listed in the top twenty-five news sources, publishing four articles accepted for analysis. In 2017, NPR released a statement that their “journalism and original programming [reached] at least 99 million people every month across all platforms” (“NPR Reaches 99 Million People”). Due to its large reach, NPR was also selected as a news source. *Forbes*, a business magazine, provides a unique platform that shows viewership. Only *Forbes* articles with over 7,000 views were used, and one article was excluded for repeated authorship. In total, three articles from *Forbes* were selected for analysis.

In addition to central materials, two “left lean” and “right lean” news sources were selected. *The New York Times*, a newspaper website, and CNN, a cable news site, are left-leaning and in the top twenty-five news sources (Mitchell and Rosenstiel). Fox News, a television

broadcast news site, and *The Washington Times* were used to observe right-leaning articles. Fox news is listed in the top twenty five news sources (Mitchell and Rosenstiel), and *The Washington Times* appeared in a top 100 US newspapers list (An et al.). First published by *The New York Post*, a top twenty-five news source, the Fox news article had the potential to reach a large audience (Mitchell and Rosenstiel). It is important to note that this is a small sample size.

Frames:

Framing impacts how the public views and responds to an issue (Bolsen and Shapiro). Words, symbols, or phrases that feature a certain component of any object or theme are considered frames throughout this paper. To better understand framing, I will briefly discuss the IPCC Special Report, the source content for all selected media articles.

The United Nations Framework Convention on Climate Change requested that the special report (SR1.5) would “assess what a 1.5°C warmer world would look like but also the different pathways by which global temperature rise could be limited to 1.5°C” (Allen et al. 79). The IPCC added that the report “would also look at these issues in the context of strengthening the global response to the threat of climate change, sustainable development and efforts to eradicate poverty” (Allen et al. 79). The report operates in five chapters with a summary for policymakers that condenses major findings into short subsections.

Bolsen and Shapiro identified eleven frames prevalent in the media. Selected news articles rely on economic consequences, environmental consequences, political conflict, and response efficacy frames to support a master “feasibility” framework that challenges the IPCC report’s findings and recommendations to limit warming to 1.5°C.

Framing will be broken down by Snow and Benfords' three core framing tasks - diagnostic (identifying the issue and asserting blame), prognostic (discussing the solution to the problem), and motivational (the call to action). Because these frames emerge relatively sequentially, I will be analyzing articles by breaking down each core framing task as it applies to a feasibility framework.

Feasibility Framework:

In order to introduce the master frame, I will briefly expand on the definition and use of the word "feasible." Merriam-Webster, an online dictionary, defines feasible as an abstract adjective that indicates something is "capable of being done or carried out" ("Feasible"). For the purpose of this paper, feasible will be synonymous with "possible." Both words are abstract adjectives that muddle interpretations of our world's current and future state.

IPCC recommended solutions are generally presented as abstract ideas that are not yet applied in practice, and journalists effectively communicate the necessity of additional information to reach concrete conclusions. Although illustrating the consequences of inaction, journalists advocating for change struggle to determine if human society is capable of limiting warming to 1.5°C, or if it is feasible meet the IPCC's recommendation. This paper will further expand on the impacts of a master feasibility framework. Overall, a feasibility framework will lower positive readership behavioral changes, lowering the potential to successfully limit warming.

Diagnostic Framing:

Diagnostic frames seek to establish the root of the problem (Snow and Benford). The IPCC report states that “temperature rise to date has already resulted in profound alterations to human and natural systems... these changes are causing unprecedented risks to vulnerable persons and populations” (Allen et al. 53). Exemplifying the negative consequences of warming, the IPCC labels climate change as a “threat” (Allen et al. 79). Linking anthropogenic activities to climate change, the IPCC states, “Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels” (“IPCC, 2018” 6). Throughout the report, the IPCC effectively demonstrates the consequences of warming above 1.5°C and quantifies society’s contribution to climate change. A lone outlier, *The Washington Times* dismisses climate change as a threat, implying scientists and extremist liberals who urge society to throw monetary resources into limiting warming are the problem. Three articles, targeting climate-based influential stakeholder disputes, utilize a political conflict frame. Framing warming, particularly that above 1.5°C, as a threat to our world, the majority of articles illustrate the environmental problems associated with climate change.

Economic and Environmental Consequences:

Bolsen and Shapiro have identified economic and environmental consequences as frames prevalent in the US media’s coverage of climate change. These frames focus “on the [economic and environmental] effects or impacts of climate change or policy action” (Bolsen and Shapiro 150). Consequences can be presented as positive or negative. The IPCC report notes that a shift in species’ range, triggered by climate change, is “mostly negative for human communities” but can have benefits, such as the temporary expansion of Northern fisheries (Hoegh-Guldberg et al. 222). This passage presents short-term positive and negative consequences associated with

climate change. Other sections of the report explore the differences between impacts caused by 1.5°C and 2°C of warming.

News articles generally stressed the negative environmental consequences of climate change. Six articles focused on the consequences of warming exceeding 1.5°C. Four other articles utilized the general consequences of climate change, avoiding the differentiation of 1.5°C and 2°C of warming. The IPCC report was often quoted to establish the negative environmental consequences of climate change.

Articles can characterize the threat of climate change by listing the possible benefits of limiting warming. Rice writes, “Limiting warming to [1.5°C] would significantly reduce the risk of climate impacts such as water scarcity, flood and drought, extreme heat, tropical cyclones, biodiversity loss, and seas level rise.” By creating a list of risks, Rice unveils the environmental consequences of climate change. The threat of climate change is also captured by the article title, “UN Report: ‘Unprecedented Changes’ Needed to Protect Earth from Global Warming.” “Protect” indirectly implies the Earth is facing a hardship. Words such as “reduce” and “protect” also emphasize the benefits of limiting climate change. McGrath follows suit, writing, “A half a degree doesn’t sound like much but whether it is coral reefs, crops, floods or the survival of species, everyone and everything is far better off in a world that keeps below 1.5C.” A reader can deduce that, if society fails to limit warming to 1.5°C, there will be specific environmental consequences.

Political leanings alter the digestibility of frames. Studies have shown that liberals are more likely to support mitigation actions when the environmental consequences of climate change are discussed (Bolsen and Shapiro 157). In contrast, conservatives respond negatively to an environmental frame. Both Rice and McGrath, representing a central news source, have the

ability to reach either audience. Their focus on environmental consequences will likely appeal more to a liberal audience. Framing the limit of climate change as beneficial for the environment may also elicit hope, an emotion that can motivate goal pursuit (Nabi et al.). McGrath does an excellent job of shifting from fear to hope, evident in his first subheading reading, “It is ‘seriously alarming’ but surprisingly hopeful.” The threat of climate change is evoked by the word “alarming,” but McGrath then diverts to an optimistic outlook, emphasized by “hopeful.” Previous research has shown that an emotional flow from fear to hope can be effective in motivating the public (Nabi et al. 447).

The majority of articles differentiate the consequences between a 1.5°C and 2°C world. Puko states, “A failure... to limit global warming to ‘well below’ two degrees Celsius... would be devastating for some ecosystems and raise sea levels to flood many major cities.” Situating environmental consequences within a 2°C or warmer world indicates climate change problems can be avoided. Fox News, publishing a *New York Post* article, begins in a similar fashion, asserting, “Earth is on track to face devastating consequences of climate change” (Eustachewich). This conservative source closes the sentence with “unless there’s an ‘unprecedented’ effort made.” Concluding with the word “unless” hooks the reader, encouraging them to read on and take steps to address the issue of climate change. Fox News also continues, stating, “There are so many more problems if we exceed 1.5 degrees C” (Eustachewich). Winkless accentuates the consequences of overshooting 1.5°C, writing, “The biggest thing for me was how significant the impact of that ‘extra’ 0.5°C increase could have on life.” For scientific writers, significant usually indicates a difference that can be statistically proven. Winkless’ individual admission holds personalized sway over readers, accentuating the negative consequences between a 1.5°C and 2°C world.

Both left-leaning articles highlight the differentiated losses related to warming above 1.5°C. Plumer and Popovich, representing *The New York Times*, write, “That much warming could expose tens of millions more people worldwide to life-threatening heat waves, water shortages and coastal flooding.” Similarly, an article by CNN indicates that hitting 1.5°C will “[precipitate] the risk of extreme drought [and] wildfires...for hundreds of millions of people” (Miller and Croft). A quantifiable threat, climate change carries consequences to the collective and the individual. Advocating a sense of empathy, liberal sources illustrate the state of our society with warming above 1.5°C.

Additional articles focus on the general consequences of climate change. Joyce states, “But even with a 1.5-degree C increase, the world can expect serious changes to weather, sea levels, agriculture and natural eco-systems.” Reid follows suit, writing, “We are already seeing the consequences of 1°C of global warming.” These passages suggest that climate change is, and will continue, to be a problem even if we limit warming. This diminishes hope for the future and may lower the audience’s reaction to meet proposed goals (Nabi et al.445).

Awasthi hones in on the general consequences of climate change, applying them to a regional level, writing, “The report says that the impact of a 1.5C increase in global temperatures will ‘disproportionately affect disadvantaged and vulnerable populations... India stands to be one of the nations most significantly affected.” Unlike other articles, Awasthi expands on climate change economic/environmental consequences to a specific area, India. Sea level rise and deadly heatwaves are two climate related events that “will have a disastrous impact on the country.” Scannell and Gifford studied the effects of local and global frames in regards to climate change. The researchers concluded that local frames are more effective in engaging the public. Awasthi’s article may be more openly received in India in comparison to other parts of the world. The

effectiveness of local frames is based on personal relevancy which can increase an individual's motivation and aid in message comprehension (Scannell and Gifford).

Environmental/economic consequence framing highlights risks of future losses and damages. 71% of articles directly use the word “risk” to describe future consequences. Recent work has shown that the focus on risks rather than harm diverts blame and limits accountability (Vanhala and Hestbaek 122). Governmental organizations reaction speeds can be dependent on accountability (Agné), and it is reasonable to assume decreased accountability will lead to slower reaction times. This hinders positive change and lowers the probability for limiting warming to 1.5°C.

Political Conflict:

In addition to environmental/economic consequences, political conflict is a frame prevalent within the news coverage of the IPCC report. The political conflict frame is defined as placing a high focus on clashing interest groups (Bolsen and Shapiro 150). Within the political conflict frame, news articles tend to separate winners and losers through contextual cues or evidential information. Four articles employ the political conflict frame to deliberate over resulting issues tied with the IPCC report's release.

In “Isle of Man ‘Not Complacent’ About Climate Change,” the growing conflict between the Manx government and the report's findings is emphasized. The conflict between two parties is highlighted when the author writes, “The Manx government faced criticism on Monday for licensing part of its seabed for gas exploration, days after a UN report warned of ‘climate catastrophe.’” Although there is no direct statement of a conflict, the reader can deduce that the release of the report and the increased ability to locate fossil fuels are two events at odds.

Geoffrey Boot, the Manx environment minister, is quoted throughout the article. Boot states, “We’re analyzing the data and I’m finding it very difficult to see how we can meet those goals with our present trajectory and with the finances we have available” (“Isle of Man”). Through the minister’s remarks on the infeasibility of the 1.5°C limit, the conflict between a governmental group and a scientific organization materializes. This also highlights the economic damages associated with addressing climate change.

Harrabin, representing BBC, targets the conflict between Donald Trump, the current President of the United States, and scientists. Harrabin writes, “Trump has accused climate change scientists of having a ‘political agenda’ as he cast doubt on whether humans were responsible for the earth’s rising temperature.” The “political agenda” accusation anchors the issue of climate change in the political field, distancing scientists from their actual profession, pitting them against a politician. “Accused,” a word indicating Trump is making a claim, adds uncertainty to the proposed rebuttal against scientists. In addition to climate change, Harrabin focuses on Trump’s past statements. Following the passage mentioned above, the article states, “But Mr Trump also said he no longer believed climate change was a hoax” (Harrabin). Through the conjunction, the tone shifts to doubt Trump. In contrast, the IPCC report is reliable and trustworthy, evident when Harrabin writes, “Vanishingly few informed scientists now disagree that humans have been driving recent climate change.” The word “informed” is indicative of the high intellect of those who believe in climate change. A trustworthy party, the IPCC clashes with President Donald Trump over future policy actions to limit warming.

Scientists are targeted and treated as an elite party throughout “Attacking Nuclear As Dangerous, New IPCC Climate Change Report Promotes Land-Intensive Renewables” (Shellenberger). This article expands on a specific issue presented in the IPCC report – nuclear

power. The article begins, stating, “A new Intergovernmental Panel on Climate Change (IPCC) report attacks nuclear power as a key climate solution by promoting the notion that it risks nuclear weapons proliferation, may cause childhood leukemia, and destroys the natural environment” (Shellenberger). “The notion” suggests there is debate and uncertainty surrounding the IPCC’s findings and position. Later, Shellenberger writes, “In fact, study after study over the last 40 years finds that nuclear is the safest way to make reliable electricity, and climate scientists found that nuclear energy has saved 1.8 million lives by preventing premature deaths from air pollution.” This directly contradicts the IPCC, questions their trustworthiness, and advocates for an alternative viewpoint by listing the benefits of nuclear power. “Study after study” hammers in the certainty behind nuclear power advantages, tarnishing the IPCC’s reliability and reputation.

While all of the above mentioned reports discussed a problem specific to the 1.5°C limit or reports findings, *The Washington Times*, a right-leaning outlet, questioned the very existence of climate change. Richardson writes, “The report fired up activists even as critics dismissed the deadline as another arbitrary ‘climate tipping point,’ as Climate Depot’s Marc Morano put it.” Setting a clear target goal, thresholds motivate groups to cooperate and contribute more to mitigation efforts (Brown and Kroll 164). By increasing the uncertainty surrounding a 1.5°C threshold, individual contributions may decrease. “Another arbitrary” tipping point indicates that it is not only the 1.5°C limit but all recommended thresholds that should be doubted. This challenges the IPCC’s credibility while possibly lowering future individual contributions to mitigation efforts.

Prognostic Framing:

Prognostic framing aims to diagnose the solution to presented issues in a salient way. Bridging motivational and diagnostic frames, prognostic framing suggests specific actions required to meet a 1.5°C limit and/or attempts to alter public perceptions of the IPCC's recommendation. In general, prognostic framing in media articles hinges on the feasibility of limiting global warming.

Change is the Solution

The IPCC report offers a plethora of solutions to limit warming, such as reducing the use of fossil fuels in favor of renewable energy, implementing carbon dioxide removal (CDR) techniques, and ultimately cutting carbon dioxide emissions to zero by 2050 (Allen *et al.* 2018). In the summary for policymakers, the IPCC states, “Pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure... and industrial systems (*high confidence*). These systems transitions are unprecedented in terms of scale, but not necessarily in terms of speed, and imply deep emissions reductions in all sectors” (“IPCC, 2018” 17). Journalists, discerning a key report finding, situated the necessity for change in their own material.

Direct quotations from the report were used to spotlight three key solution aspects. The requirement for “rapid, far-reaching and unprecedented change in all aspects of society” was commonly employed in news articles (Miller and Croft; Rice; Harrabin; Eustachewich; Reid). The emphasis for “rapid” (Plumer and Popovich; Puko; McGrath) or “unprecedented” (Joyce; Winkless; Reid; Richardson) changes are continual themes in other articles. The specific language, boiled down to three words, spotlights the urgency to change. In this way, it can motivate public and policy action, setting an abstract, short-term deadline. The word

“unprecedented” could possibly have negative effects since it forces the reader to face an uncertain future. It also indicates that efforts have failed in the past to meet a 1.5°C limit. The majority of these articles (six out of eleven) utilize key words to demonstrate drastic change is required to avoid consequences of warming above 1.5°C.

Harrabin and McGrath distance key words from climate change consequences. Harrabin states, “The report said keeping to the preferred target of 1.5C above pre-industrial levels will mean ‘rapid, far-reaching and unprecedented changes in all aspects of society.’” Unlike other examples, this quotation is strategically placed to crack Trump’s arguments. While this does not directly solve the issue of political conflict, the writer indirectly asserts the IPCC’s credibility and authority, advocating for action to meet the 1.5°C limit. Harrabin continues to discredit Trump by highlighting Trump’s contradicting statements. Tearing apart an anti-climate change position, Harrabin asserts the logical reasoning behind the IPCC report and guides the reader towards actions such as shifting toward renewable energy. McGrath notes, “The report’s authors say that rapid changes must take place in four key parts of society.” By distancing the consequences of warming and importance of change, McGrath alters the frame, moving away from a loss-damage frame to one of simplistic advocacy.

After establishing the necessity for change, two articles report the infeasibility of limiting warming. Joyce stresses that “unprecedented changes” are required to limit warming. However, directly following, Joyce states, “Scientists and climate researchers have long doubted that the 1.5-degree C goal was practical or economically feasible.” This sets a pessimistic outlook on the IPCC goal. The reader may also wonder why the IPCC would propose a goal that other scientists believe to be unattainable. A header titled, “Reducing Carbon a Daunting Challenge,” further compounds solutions related to climate change, framing the IPCC goal as demanding. Joyce

ends, stating, “There is no simple answer to the questions of whether it is feasible to limit warming to 1.5C... However, it does make clear the consequences of warming above that level.” Happy endings generally tie up a story, allowing a reader to feel hope, offering relief from a tumultuous plot. However, Joyce, indicating there is no current, feasible solution to limit warming, offers no joyous ending. *The Washington Times* follows suit, writing, “Such a goal would require trillions of dollars to achieve,” pairing economic investment with the use of “unproven technologies” (Richardson). Quantifying the solutions to climate change, Richardson discourages citizen involvement and community buy-in with her heavy price tag. In contrast to Joyce, the right-leaning source calls for the dismissal of the IPCC limit, saying, “The IPCC still has not made a strong case for this massive investment to prevent 1.5C warming.” Weighing the costs and benefits of limiting warming, using external stakeholders to lower IPCC credibility, Richardson urges the reader to ignore IPCC findings and recommendations. Both articles have the potential to lower individual action against climate change.

Awasthi, adopting a regional approach, focuses on the possible solutions available to India. She writes, “The country has developed a fairly good disaster management system but it needs more resources to develop further.” India, a country struggling to meet limiting goals, preparing for the damages of climate change, requires external resources to abide by IPCC recommendations. The costs of climate change are too great for India, and “international co-operation will become all the more crucial to ensure that the world does not miss its targets again.” Inducing the global frame, Awasthi suggests countries must act as one unit to address the problem of climate change and meet the 1.5°C limit.

Shellenberger veers off the general path, inspecting a specific element of the report, nuclear power. While employing a political conflict frame, Shellenberger establishes a clear

winner. IPCC scientists are incorrect, and nuclear power will allow society to move away from fossil fuels more efficiently. Lowering IPCC credibility, he employs factual evidence to rebuff the report. His strong argument may lead the public to question other sections of the report and increase distrust of a recognized international organization.

Response Efficacy

Bolsen and Shapiro identified response efficacy as another frame commonly applied to climate change. I define a response efficacy frame as any language highlighting a mitigation or adaptation action's probability for success. A response efficacy frame can be positive (i.e. an action will be successful) or negative. Out of eleven articles that employ a response efficacy frame, the majority (7) approach the proposed solutions negatively. This aligns with past studies that discovered positive efficacy frames were generally absent in television news (Bolsen and Shapiro).

The economic difficulty of limiting warming to 1.5°C is expounded. The Environmental Minister of Manx is quoted, saying, "I'm finding it very difficult to see how we can meet those goals with our present trajectory and with the finances we have available" ("Isle of Manx"). *The Washington Times* follows suit, stating, "Such a goal would require trillions of dollars" (Richardson). Using monetary figures is a commonly employed technique to unveil economic costs associated with addressing climate change. The costs of limiting warming are difficult to calculate. Although there is a significant amount of investment required to limit warming, there are also numerous indirect benefits, such as increased crop yields or lowered medical expenses from fewer heat-related hospitalizations. The IPCC, however, was unable to calculate all of the associated economic indirect benefits for limiting warming and did not include total mitigation

costs due to limited research (“IPCC, 2018”). In the summary for policymakers, the IPCC only offers one quantified value for limiting warming, stating 2.4 trillion US dollars are required for investments in the energy sector. This number could be balanced by future reduced marginal abatement costs and the indirect benefits of limiting warming (“IPCC, 2018”). Therefore, while Richardson’s figure is correct, it does not cover the full costs and benefits associated with limiting climate change. Overlooking the possible monetary returns of limiting warming, news articles, presenting a clear quantifiable obstacle, frame limiting warming in terms of economic loss. Awasthi assesses the costs of required changes to be about \$900 billion. The economic obstacles of limiting warming is emphasized in these three articles.

The state of technology is another inhibitor in the quest to limit warming. Joyce analyzes various solutions proposed by the IPCC. Limiting warming is “very unlikely without new measures and technologies to remove greenhouse gases from the air, some of which have yet to be invented” (Joyce). These Carbon Dioxide Removal (CDR) techniques are currently impossible due to the lack of available technology. Joyce continues, breaking down afforestation/reforestation (i.e. planting more forests to absorb carbon), bioenergy with carbon capture and storage (BECCS; i.e. burning biomass for fuel and collecting the carbon dioxide waste), and direct air carbon capture and storage (DACCS; removing carbon from the air). The challenges facing each option is revealed, and Joyce concludes with a quotation that call the technological solutions “more of a hope than a reality.” This frames potential solutions as infeasible. Four other articles stress the importance of CDR technology in meeting the 1.5°C goal. However, the technology is presented as untested or inadequate for the scale required (Awasthi; Miller and Croft; Plumer and Popovich; Richardson). Upon reading this, a person may feel defeated or unmotivated, facing a goal that is presented as unrealistic with the use of current

technology. Controversially, it may also promote innovation as people step up to the technological challenge.

Political arenas also present challenges to limit warming. The Manx government permitted three years of fossil fuel exploration. Placing a high value on fossil fuels directly conflicts the recommended actions to limit warming. This demonstrates the negative responses of local governments, indicating politics can hinder limiting warming. Puko follows suit, placing a high value on political obstacles. Asserting the limited abilities and “unproven” application of CDR technology, Puko adopts a pessimistic efficacy frame. However, he concludes the article, quoting, “The reality is that the technology is there, we do know what to do... But will we? That’s a political question, not a technical question” (Puko). The problem is rooted in the political sphere, and leaders possess the power to take advantage of the technology available. Open-ended questions permit hope for future pathways. Opportunism accomplishes the IPCC goal, while compliancy sends us further into a world wrought with environmental/economic consequences.

Interestingly, both liberal sources focus on technological and political efficacy. CNN notes that limiting warming “will also require considerable political engagement globally... There is no indication such cooperation will be doable, particularly given the Trump administration’s stance on this issue” (Miller and Croft). Condemning Trump, a liberal source shifts the blame onto a conservative official. Positive political action, although necessary to limit warming, is infeasible. This further separates the two political parties. *The New York Times* takes a similar approach, commenting that achieving a 1.5°C, “would entail a staggering transformation of the global energy system beyond what world leaders are contemplating today” (Plumer and Popovich). While *The New York Times* avoids implicating a political party, they do

reveal the political obstacles involved with limiting warming. By shifting the focus off economic damages, liberal sources can establish blame and distance themselves from the “villains” whose actions contradict IPCC recommendations.

Although the majority of articles have a negative response efficacy frame, five are optimistic about the future. Drawing on an expert opinion, Rice reveals that limiting warming to 1.5 or 2 degrees Celsius appears improbable. However, he directly contradicts this statement, writing, “Yet despite the pessimism, some report authors said they remain optimistic” (Rice). Refuting the prior claim, Rice offers a positive efficacy frame, indicating limiting warming is within our reach. Rice concludes with a quotation that declares the IPCC recommendation “not impossible.”

Self-efficacy is employed to establish a positive response efficacy frame. Presenting simple, individual actions, three sources utilize a positive response efficacy frame. Reid writes, “Governments will have to change tack on the way they manage energy, land use, and urbanization, but individuals also have to change their lifestyles, eating less meat, drying clothing on washing lines rather than in tumble driers, and walking or cycling short distances.”, The conjunction “but” indicates an unexpected, yet important twist; the everyday citizen is part of the solution. A list of simplistic, easy-to-achieve actions, Reid transforms the IPCC limit into a realistic goal. Similarly, Winkless promotes individualized, specific actions. Winkless writes, “Every individual effort can make a dent in this global change.” A list forms throughout the article, advocating campaign involvement, commuting transformations, alterations in eating habits, and more. First person point of view also bonds the reader to the writer, encouraging collective action through the word “we” (Reid; Winkless). Individual actions are further stressed by McGrath. Relating acts similar to Winkless and Reid, McGrath advocates citizen involvement

throughout his concluding section titled, “It’s (Partly) Down to You.” Research has discovered that positive self-efficacy will increase public engagement in respects to climate change (Bolsen and Shapiro). These three articles thus have the highest potential to promote positive behavioral changes in regards to climate change.

Motivational Framing

Motivational framing spurs collective action with a “call to arms” or a logical reasoning for public involvement (Benford and Snow). A US nuclear disarmament movement used severity, urgency, efficacy, and propriety to establish a motivational frame (Benford and Snow), and similar tactics were used in media outlets covering the IPCC report. Although motivational framing can encourage positive responses to the 1.5°C goal, it can also operate in the reverse fashion, stimulating disadvantageous behaviors. It is critical to understand motivational framing since “without strong public support, ambitious climate policy is infeasible” (Bolsen and Shapiro).

Engaging the individual is an excellent method utilized in motivational framing. Reid, ensuring the individual is aware of their role in the quest to limit warming, concludes with a quotation, stating, “The next few years are probably the most important in our history.” Urgency is highlighted as Reid institutes a time restraint. Researchers have found that urgency reduces the use of an efficacy frame (Benford and Snow). This issue was addressed by adding a sense of duty to communication pieces. Winkless ends her article, saying, “The Earth needs you now.” Not only does Winkless establish the sense of urgency and ramifications of missing the 1.5°C limit, but she instills a sense of duty. Individuals have been given their list of actions, and they have a responsibility to the planet to adopt acts designed to limit warming. McGrath

demonstrates the benefits of individual action, writing, “This greater awareness, and the changes it might inspire, could even be good for you.” Attentiveness to eating habits will cause a domino effect. Not only can it mitigate the environmental damages of climate change, but it has health benefits. The sense of urgency is restricted in this section as the positive response efficacy frame is highlighted.

Certain journalists phrase the call to arms as humanity’s last chance at survival. Rice and Joyce utilize a quotation from IPCC co-author Natalie Mahowald. Mahowald states, “This is our chance to decide what [the world will] look like” (Joyce; Rice). “Our chance” underscores the sense of urgency facing our planet and operates as a recruitment mechanism to engage the individual. While Rice concludes with this quotation, Joyce follows the passage with critics of the technology required to limit warming. A reader may feel a sense of hopelessness after facing a negative efficacy framework, and this might reduce willingness to change. Concluding on a quotation, Puko asks whether we will use the technology we have to meet the IPCC recommendation. The individual is now responsible for the future and has the power to make an impact through political advocacy.

Although the majority of articles employ an individualistic approach, two articles target political leaders, specifically Trump and his administration, to induce change. “And in the US itself, the solar industry is creating far more jobs than the coal sector. Does the president know that?” Harrabin’s conclusion directly challenges President Trump. By avoiding specific actions a reader can take, he excludes the public in the solution to limit warming. Blame for climate action is now placed squarely on Trump. The open question also targets Trump, challenging him to examine his stance on the solar industry. Miller and Croft also stress the role of the Trump administration. Al Gore is quoted, saying, “The [Trump] administration is in direct conflict with

American businesses, states, cities and citizens leading the transformation” (Miller and Croft).

To meet the public’s needs, the Trump administration must reform its policies and join the battle to limit warming. Miller and Croft also do not directly advocate political engagement, separating the individual from the solution.

Conclusions:

The IPCC report set and publicized a 1.5°C limit to climate change. Urging for drastic action, the report, filled with scientific jargon, hosting a summary for policymakers, is geared for legislators. Facing a 500 plus page document, the general public will most likely turn to mass media to obtain information about the IPCC report. It is therefore important for media outlets to employ frames that are digestible and, aligning with the IPCC report, promote positive behavioral changes. Framing in media articles also has the potential to critique the scientific document, altering public perceptions of IPCC credibility and authority.

Climate denial is a minority opinion. Research published in 2011 revealed only about 20% of people were uncertain if climate change was a problem (Whitmarsh). Current media outlets accept climate change as a significant threat to our society. Only one conservative outlet, *The Washington Times*, explicitly denied the report’s recommendations and the reality of climate change, dismissing it as another meaningless tipping point. Unless directly targeting a conservative audience, the media acknowledges scientific evidence as adequate proof of climate change. With increased agreement, readers may be more likely to accept climate change as a threat to environmental and human health.

However, recognition is not synonymous with reactive. While media outlets stress the problems associated with climate change, they also emphasize the obstacles – economic,

technological, and political – of meeting the IPCC recommendation. By systematically critiquing solutions proposed by the IPCC, the majority of media articles question IPCC credibility. This can lower responses to the report and propagate climate denial. In 2014, Collomb illustrated the American shift in climate deniers to climate nondenier deniers. Nondenier deniers first argue consequences are being overstated and then emphasize mitigation efforts to be costly and insignificant. The majority of news outlets support nondenier denier thinking by highlighting the infeasibility of mitigation efforts, reducing the possibility a reader will react to the threat of climate change. Positive efficacy frames, sparsely scattered throughout news outlets, are necessary to engage the public and limit warming. These frames promote hope and directly interact with the reader through first or second point of view. Calling on the individual, media outlets have the potential to captivate the public and incite positive change.

Positive change is only possible with a large, united front. News articles cater toward liberals, accentuating environmental consequences and liberal figureheads. Certain journalists attack political figures, such as Trump, for their political actions, shifting responsibility onto the shoulders of the elite. By establishing blame or propagating liberal ideals, media outlets separate the two parties, decreasing the chance for future bi-party cooperation. Liberal outlets specifically express concern as to if cooperation is even a possibility for the future, creating a sense of hopelessness and perhaps even anger for readers.

Scientific documents are often geared for policymakers. However, change cannot occur without the consent and unified action of the general public. In their balanced portrayal of the climate change, news outlets downplay the science behind the report, propagating the notion of infeasibility and political conflict. This will carry future consequences in terms of reactive behavioral responses.

There are still many knowledge gaps in climate change media framing. I suggest surveying the public for better comprehension of the impact of frames. Secondary sources employed by this project may be outdated or lack a certain variable consideration. With better understanding, new frames can be developed to best reach the public and advocate positive change.

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