

**Decolonizing Western Climate Communication:  
Improving climate journalism and climate science research**

Harvin Bhathal

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By: Harvin Bhathal

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Signed by the final Examining Committee

Magda Konieczna

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Chair Prof. Magda Konieczna

David Secko

---

Examiner Prof. David Secko

Amélie Daoust-Boisvert

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Supervisor Prof. Amélie Daoust-Boisvert

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## **Abstract**

Western climate communication is in dire need of reshaping how climate journalism and how climate science research fundamentally operate. As currently constructed—homogenous with a lack of racial and gender diversity—these fields are not producing the work required to effectively mitigate the impacts of the climate crisis. Enabling the voices of racially marginalized people and women and non-binary people is necessary because of the racialized and gendered impacts of the climate crisis—particularly in the Global South and marginalized communities of the Global North. A more representative western climate communication will produce work that contextualizes the colonial and intersectional impacts of the climate crisis, values moral clarity and intellectual honesty over objectivity, and uses both Indigenous knowledge and western science to understand our changing world.

## Introduction

The relationship between the Global South and the Global North can be described as a type of facultative parasitism, forcefully entering a host's body, leeching onto it, and living off it—not because of necessity, but because it can, or in the case of the Global North, because of greed (Luong & Mathot, 2019). For centuries, the Global North has been draining the Global South of their resources, and that unequal relationship continues today. Through colonialism, imperialism, and then neocolonialism, Global South countries have been left less capable of addressing the impacts of the climate crisis that Global North countries, such as the United States of America and the United Kingdom, have mostly caused and perpetuated. As of 2015, a study found that the US is responsible for 40% of excess global CO<sub>2</sub> emissions, while European countries are responsible for 29% (Hickel, 2020). In total, the Global North is responsible for 92% of excess emissions, yet the Global South endures the worst consequences (Hickel, 2020).

What is clear is that the worse the ongoing crisis gets, the more important climate communication becomes. However, despite its importance, western climate communication narratives are out of touch with the lived experiences and realities of people from the Global South and marginalized communities in the Global North—those most affected by the climate crisis. At its core, decolonizing western climate communication means to integrate more anti-colonial, feminist, anti-racist, and anti-capitalist critiques and struggles into mainstream climate discourses and practices within the fields of climate journalism and climate science research. For the purposes of this essay, climate journalism is defined segment of journalism concerned with climate change, specifically with its characteristics, causes, and impacts in various societal fields, as well as ways of mitigating or adapting to it,” (Schäfer and Painter, 2021, p. 2). Decolonized climate reporting considers solutions and lived experiences, and decolonized climate science research considers

different forms of knowledge to create a well-rounded and complete understanding of critical environmental issues.

These narratives found in journalism are heavily tied with knowledge production (climate science research), meaning who is cited, who is interviewed, who is heard, and who helps set agendas. The knowledge that is produced and disseminated often comes from white, male experts from the Global North instead of those experiencing long standing climate impacts and producing place-based knowledge. Decolonizing climate science research goes hand in hand with decolonizing western climate journalism. To date, climate communication has failed to achieve decolonization, but there is a path forward.

In this essay, I will argue that diversifying the fields of climate journalism and climate science research, as well as altering journalism practices and how western research fundamentally operates will make western climate communication reflective of our reality and give us a better chance to mitigate the impacts of the climate crisis. The first section will cover the lack of diversity in climate journalism in Canada, the United States of America, and the United Kingdom. The second section will cover the lack of diversity in climate journalism in practice and be split into the following subsections: lack of contextualization, news coverage of climate refugees, objectivity, and complicit in the climate crisis. The third section will cover the lack of diversity in climate science research and be split into the following subsections: statistics, importance of gender diversity, academia in the Global South vs. the Global North. Section 4 will cover the importance of following Indigenous knowledge in climate journalism and climate science research. This essay will be concluded with final remarks about the changes that need to be implemented in the fields of climate journalism and climate science research. With this essay, I

hope to provide an outline for these fields to follow to best mitigate the impacts of the climate crisis.

### **Section 1. Lack of diversity in climate journalism**

A part of the reason why western climate journalism is not effective in communicating the severity of the climate crisis is the demographics of newsrooms around the world.

In Canada, 78% of journalists identify as white, 82.9% of people in supervising positions identify as white, and 8 in 10 newsrooms are reported to have no Black, Indigenous, Latin, Mixed Race or Middle Eastern journalists on staff (CAJ, 2022). Women represent 50.6% of newsroom staff and non-binary people represent 0.4%, which is representative of the 2021 Canadian census (CAJ, 2022). However, women and non-binary people remain underrepresented in leadership roles and overrepresented in part-time roles. 59.4% of part-time roles and 58.0% of internship positions are filled by women, while only 49.5% of supervisors and 48.2% of full-time employees are women (CAJ, 2022). Only 0.2% of supervisors identify as non-binary, while 2.5% of interns identify as non-binary (CAJ, 2022).

In the United States of America, 76% of journalists identify as white and that number rises to 84% for environmental and energy issues (Tomaik & Gottfried, 2023). Of all the possible topic areas or beats, the one that is most disproportionately covered by white people is environment and energy (see Figure 1). Considering the climate crisis most impacts racially marginalized communities across the world, 84% of the journalists covering this topic being white is not producing a climate journalism that is not reflective of the US' reality, which is that they are a diverse group of people.

# A demographic profile of U.S. journalists who cover each beat

## A demographic profile of U.S. journalists who cover each beat

Among U.S. reporting journalists who cover each topic area or beat, % who are ...

	Men	Women	Ages				White	Black	Hispanic	Asian*
			18-29	30-49	50-64	65+				
All reporting journalists	51%	46%	14%	39%	29%	14%	76%	6%	8%	3%
Crime & law	53	45	19	43	27	8	77	6	9	3
Economy & business	53	45	13	37	30	15	79	5	7	4
Education & family	35	63	22	38	25	12	75	7	9	4
Entertainment & travel	48	50	10	43	29	15	75	7	9	3
Environment & energy	50	48	14	38	30	16	84	2	6	3
Government & politics	60	39	15	38	29	14	78	5	8	3
Health	34	64	18	40	26	12	78	5	8	5
Local & state	51	48	16	35	31	16	75	8	10	2
Science & tech	58	38	10	45	25	15	77	3	7	7
Social issues & policy	38	58	18	43	24	12	53	15	20	5
Sports	83	15	13	43	30	12	82	5	6	1

**Figure 1.** A survey of US journalists conducted by the PEW Research Center between February 16, 2022—March 17, 2022. (Tomasik & Gottfried, 2023).

In the United Kingdom, 88% of journalists identify as white (Statista, 2023). People of colour account for only 6% of editorial positions (Argeudas et al., 2023). Women only comprise 41% of journalists and editors (Statista, 2023). There is a lack of research done to identify the number of non-binary people in UK news media.

Canada, the US, and the UK are Western nations that are not homogenous in race or gender; people of colour represent a substantial percentage of these countries' population, yet they are not well-represented in the news media landscape. Today's newsrooms do not represent the perspectives of marginalized communities in the face of the climate crisis.



## **Section 2. Lack of diversity in climate journalism in practice:**

### *Section 2a. Lack of contextualization*

In practice, the lack of diversity in climate journalism leads to incomplete coverage of a complex issue. For example, narratives of dystopian futures or of a climate apocalypse, are popular in Western hegemonic climate frames (Sultana, 2022). However, for people in marginalized Global South and Global North communities, this is their past and present. These communities are already facing an increased frequency of natural disasters such as massive floods, as well as more intense heatwaves. Narratives of dystopian climate futures are not reflective of the larger reality that this is not the future for many people, the climate crisis is currently a critical issue that needs to be dealt with immediately. A heightened rate of natural disasters is just the beginning. The overexploitation of Global South resources, crumbling infrastructures, inadequate social safety nets, air pollution, lack of access to clean water and sanitation, and disparities in housing and education are all important aspects of what comprises the climate crisis for people in the Global South (Sultana, 2022, p. 99). Indigenous scholar Kyle Powys White offered time as an inextricable aspect of thinking about injustice and the climate crisis. Whyte (2016) wrote, “climate injustice is [a part] of a cyclical history within the larger struggle of anthropogenic climate change catalyzed by colonialism, industrialism, and capitalism.”

Take the massive flooding Pakistan experienced in 2022. The floods killed over 1,700 people, affected the lives of 33 million more people, over 2.2 million homes were destroyed, and more than 7.9 million people were displaced (Center for Disaster Philanthropy, 2023). The catastrophe received extensive coverage in news media across the world, but there was a fundamental piece of context missing. What you did not see in much of the news coverage was the floods ties to Pakistan’s colonial past and present. Shozab Raza, a Pakistani journalist, was among

the journalists who gave justice to this issue through their coverage, publishing two articles, one for the UK newspaper *The Guardian*, and one for *Red Pepper*, a leftist magazine and website based in the UK. The scale of destruction that the floods caused was exacerbated by hydrological infrastructure built over centuries by the British empire and local allied elites. When the British first annexed south Punjabi districts in the mid-1800s such as Dera Ghazi Khan, an epicentre of the 2022 flooding, they encountered pastoralist tribes that would seasonally migrate throughout the region, reflecting a local ecology of periodic flooding (Raza, 2023). However, their migration patterns combined with their combativeness, posed a threat to the empire's security and profit-making intentions. To solve both issues, the British built a system of perennial irrigation and settled farming with tributaries, and later, embankments to prevent future flooding and protecting their revenue streams (Raza, 2023). This short-sighted economic decision and imperial approach to river and flood management ignored hydrological science and traditional knowledge, and instead, set up the country to be extremely susceptible to flooding in the future. Even after gaining independence, Pakistan's elites worked in collaboration with western firms in the 1950s to expand the Indus basin's hydrological infrastructure, building a series of canals, link canals, barrages, dams, and later in the 2000s, mega-hydrological projects (Raza, 2023, p. 1). In theory, this was supposed to improve their infrastructure. However, this imperial approach shaped by colonial hydraulic interventions has made Pakistan, a country that contributes less than 1% to annual global CO<sub>2</sub> emissions, extremely susceptible to massive flooding (Ramirez & Dewan, 2022, p. 1).

Sahar Habib Ghazi, a journalist based in Pakistan who has covered South Asian topics and the climate crisis for US newsrooms, said in an interview with AJ+:

“We just didn't see that kind of coverage in the US media. They just don't seem to care, even though the US was also a former British colony. I think they should be kind of

interested in how British colonialists impact Indigenous knowledge, Indigenous culture, and Indigenous systems,” (AJPlus & Sanaface, 2023, 2:42–2:56).

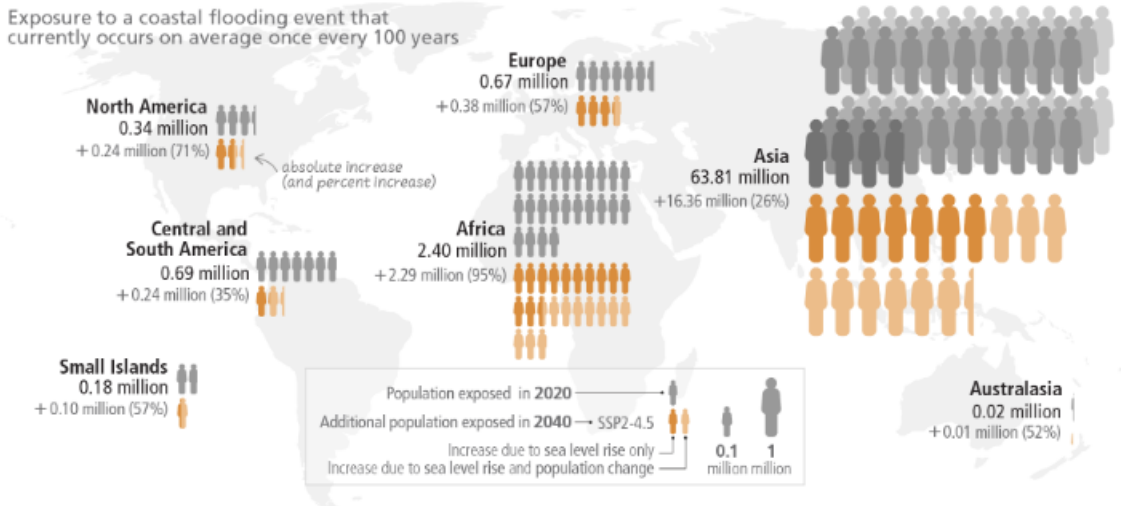
Conversely, to Ghazi’s point that the US should be interested in how the British impact(ed) Indigenous knowledge, culture, and systems because they too were once a British colony: the US has their own extensive history of colonialism and eradicating Indigenous ways of life. If US institutions do not care about their own history of colonialism, they are not going to care about another country dealing with colonial impacts. This is precisely why an institution like western journalism needs a wider array of voices, particularly when covering the climate crisis. A comprehensive understanding like Ghazi outlined is necessary to cover anthropogenic climate change today; otherwise, news organizations and journalists are doing a disservice to themselves and the world.

### *Section 2b. News coverage of climate refugees*

One of the consequences of the climate crisis is climate refugees, people who must leave their homes and/or their countries because the effects of the crisis have made their homes/country inhabitable (Berchin et al., 2017). The Institute for Economics and Peace (IEP), a thinktank that publishes annual global terrorism and peace indexes, found that 31 Global South countries do not have the infrastructure to withstand the greater exposure to environmental disasters, and water and food shortages in the next couple of decades. Global South countries will see a substantial increase in exposure to these environmental disasters within the next 20 years (see Figure 2).

## Every region faces more severe and/or frequent compound and cascading climate risks

### a) Increase in the population exposed to sea level rise from 2020 to 2040



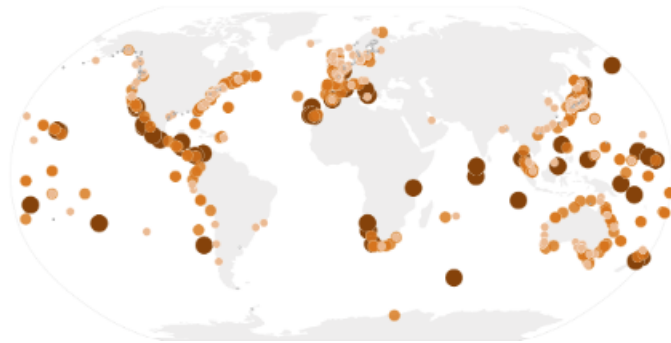
### b) Increased frequency of extreme sea level events by 2040

Frequency of events that currently occur on average once every 100 years

The absence of a circle indicates an inability to perform an assessment due to a lack of data.

Projected change to 1-in-100 year events under the intermediate SSP2-4.5 scenario

- Annual event
- Decadal event
- Twice-a-century event
- No change



**Figure 2.** Every region faces more severe or frequent compound and/or cascading climate risks within the next 20 years. Panel A shows how coastal flooding will impact different regions of the world based on the increasing rate of greenhouse gas emissions and current adaptation measures in place. Panel B shows the projected increased frequency of extreme sea level events around the world resulting from a combination of mean sea-level rise, tides, and storm surges (IPCC, 2023, p. 65).

These 31 countries—including Afghanistan, Nigeria, India, and Mozambique—outlined by the IEP are home to 1.2 billion people. According to this IEP report, there could be 1.2 billion climate refugees by 2050 (Institute for Economics and Peace, 2020). Despite the severity of this

issue, western news media compounds this issue by their coverage. How climate refugees are portrayed impacts how they are perceived by the Western public.

Maria Sakellari produced a meta-analysis titled, “Media coverage of climate change induced migration: Implications for meaningful media discourse.” Sakellari analyzed articles from western countries like the UK, Australia, Germany, the US, and more that have traditionally hosted climate refugees, identifying the different frames that they are typically portrayed as. Framing theory follows the idea that “how something is presented to the audience (the frame) influences the choices people make about how to process that information” (Arowolo, 2017). The main frames that she identified were “security threats” and “victims,” and these frames contribute to the othering of different groups of people to the western public — othering that is perpetuated by the lack of diversity in climate journalism. The rationale behind presenting climate refugees as security threats is that there is a “causality between climate-linked scarcity of resources, population movements, and violent conflicts, where host countries are threatened by an unknown and growing potential for crime and terrorism within these new flows of migrating people. However, the research on this link to date is controversial, contradictory, and relatively weak. This frame reduces climate migration to “an arena of discussions among high-ranking policy makers and elites,” stripping it of the context and complexity that it has, the author adds, noting that the victim frame is rooted in “notions of climate refugees as passive and helpless in the face of a changing climate.” This frame is not necessarily negative in the way that it has the potential to encourage “a relationship of compassion and care with displaced people,” but Sakellari writes that at the same time, “it proves effective in creating a threat of instability presented by their condition of statelessness.” These frames reinforce the dichotomy of us versus them for western countries. They work to frame migrating people as one single undifferentiated “other” with no agency. The climate

refugee is an ambivalent figure, “shifting between the victim of climate change in need of protection and a threat to the hosting community.”

In addition, there are different techniques within framing theory that scholars Gail Fairhurst and Robert Sarr theorize that journalists use to present information. The techniques most relevant to how climate refugees are covered in the news are metaphor, slogan, and spin (Fairhurst and Sarr, 1996). Using metaphors as a framing technique means to frame an idea through a comparison to something else. Slogans and jargon refer to catchphrases that would make an idea more memorable. Spinning an idea refers to presenting it in a way that conveys a judgment, whether positive or negative, to create an inherent bias. An article, “Today’s climate refugees, tomorrow’s terrorist recruits,” published by the American Security Project uses all three of these techniques (McCoy, 2010). It compares them to terrorists, it is an eye-catching headline, and it’s spinning climate change-induced migration as a hotbed for terrorist recruitment.

The answer to the negative portrayal of climate refugees by Western media is not by removing bias or being neutral. What their news coverage needs is empathy and looking at the issue from a climate justice perspective. There are political and economic structures that make certain people more vulnerable to the impacts of the climate crisis (Burzyński et al., 2022). This frame would help make that visible. An example of this frame is an article from The Guardian titled “The century of climate migration: why we need to plan for the great upheaval” (Vince, 2022). In summary, it presents migration as a solution, not a problem:

“How we manage this crisis and how humanly we treat each other as we migrate will be key to whether this century of upheaval proceeds smoothly or with violent conflict and unnecessary death. Managed right, this upheaval could lead to a new global commonwealth of humanity. Migration is our way out of this crisis,” (Vince, 2022)

A climate justice frame would link migration with human rights protection, greater equity in burden-sharing, participation in decision-making processes, and equity in the relationship between rights to movement, asylum, and safety from harm, especially harm that usually is not their fault (Sakellari, p. 69, 2022). It would also move away from the idea of climate victimhood, which climate migrants do not particularly resonate with. They prefer ideas of justice and fairness. They do not agree with the passive victim narrative but prefer a narrative of the need to act to protective their livelihoods, cultures, and ways of life from climate change impacts.

News media should rethink how they tell stories of climate refugees because how journalists portray them impacts how the public perceives them. If they were to portray them with the climate justice frame, I believe the public would begin perceiving them more positively and this would help put pressure on governments to make coordinated and well-planned efforts to address the issue of climate change induced migration that will only continue to grow.

### *Section 2c. Objectivity*

Framing is an unavoidable part of producing journalism, and it is an unavoidable part of human communication. We all bring our own frames to our communications, as well as our own biases and our own influences. Some of these influences include ideologies, attitudes, and professional norms, organizational routines such as political orientation, or external influences such as political actors, authorities, interest groups and other elites. The idea that biases are unavoidable relates to the idea that objectivity is a myth. Proponents of objectivity argue that journalists should remain neutral, but not every issue requires neutrality.

It is the forceful practice of objectivity that led to climate skepticism becoming as prominent as it once was. The idea of journalistic objectivity in US and UK journalism goes as far

back as the 1920s, but it really took a step forward in 1996 when conservative Australian media baron Rupert Murdoch launched Fox News, “proclaiming it would offer a ‘fair and balanced’ alternative to the liberal ‘mainstream’ networks” (Dunlap & Bruelle, 2020, p. 58). In reality, Fox News is far from objective, but Murdoch pushed the idea that it is objective in its formative years. Canadian journalism similarly followed suit as Canada often parallels the US. For the years that followed, anthropogenic climate change was presented as a bipartisan issue having two equal sides, when that is inaccurate and disingenuous (Dotto & Oakes, 2019). Ninety-nine point nine per cent of peer-reviewed scientific papers agree that climate change is caused by humankind (Lynas et al., 2021). In 2013, 97% of peer-reviewed scientific papers agreed that climate change is anthropogenic and there was a scientific consensus as far back as 1995 (Ramanujan, 2021; Boykoff, 2008). Yet, editors enforcing objectivity as a journalistic standard allowed for climate skeptics to skew the discourse around the climate crisis for decades. Contrarians in mainstream media managed to “create not just widespread uncertainty but the false image of climate science as plagued by ‘controversy’ and therefore totally unreliable” (Dunlap & Brulle, 2020, p. 57; Ceccarelli, 2011; Dunlap & McCright, 2015). These are decades that we cannot have back, decades that could have altered how we collectively think and act about the climate crisis today. As a young journalist today, that is inexcusable to me. It is irresponsible.

Another way in which objectivity has negatively affected climate coverage is how it has perpetuated journalism’s inability to address systemic issues, such as the climate crisis (Schmidt, 2023). Scholar Doug McLeod highlighted how journalists have used specific framing strategies that fail to see the bigger picture in news coverage.

“As a result of journalistic conventions and the desire to demonstrate objectivity, most news stories about social protest are framed episodically rather than thematically. That is,



it's easier to maintain objectivity when you describe the events that occurred than it is to delve into the underlying issues and explanations of why things are occurring the way they are," wrote McLeod in an article for Poynter (McLeod, 2020).

While this was specifically written about news coverage of social protests, it is also very applicable to news coverage of the climate crisis. Western climate journalism often fails to link extreme weather events to the anthropogenic climate change (Callison, 2021). During a record heat wave that affected the southwest US in 2017, major television networks in Phoenix and Las Vegas ignored the connection of those heat waves to the crisis. Of the 433 broadcasts that included a segment about the heat wave, only one mentioned climate change, downplaying its impact (Kalhoefer, 2017). In the same year, California was experiencing its worst wildfire season ever, which many climate scientists linked to the climate crisis (Irfan, 2017). While the L.A. Times and PBS provided accurate news coverage of the wildfires, such as an editorial titled, "While Southern California battles its wildfires, we have to start preparing for our hotter, drier future," most news outlets failed to connect the dots between rising temperatures, short-sighted forestry practices, and wildfires (Hymas, 2017). This failure to connect the dots can partially be attributed to inherent challenges in communicating "meaningful distinctions between correlation, context, and causality e.g., that climate change causes more or worse weather-related events or that it increases the overall likelihood of events," (Callison, 2021). However, a "clear repetition of climate change as the context of note is the only path forward through this global crisis..." (Callison, 2021).

Covering the climate crisis effectively requires contextualization, and it makes sense why journalists of colour have long challenged the concept of objectivity in journalism. While most of the literature by journalists of colour regarding this applies to the objectivity's systematic blind spots when it comes to coverage of police brutality, the climate crisis is a racial and ethnic issue

as well. Environmental racism is a form of systemic racism in which “environmental policies, acts, and decisions... [have] disproportionately disadvantaged racialized individuals, groups, and communities” (Venkataraman et al., 2022). It can further be defined as environmentally harmful practices occurring and/or placed around or within racially marginalized communities, including hazardous waste disposal sites, landfills, pulp and paper mills, pipelines, petrochemical facilities, old-growth logging, and more (Venkataraman et al., 2022). A diversity of voices in western climate journalism is necessary because the climate crisis’ largest impacts are not affecting the racial majority of western journalists, so the voices of racially marginalized communities are not being represented. Objectivity being one of the core elements of journalism was for journalists to maintain a distance from the individuals and communities they cover, but journalists of colour are not afforded that same privilege of distance (Mattar, 2022). They cannot distance themselves from those they cover because they are a part of the communities facing racial, ethnic, and climate issues. They cannot and they should not. Journalists are humans reporting on issues affecting other humans. Bringing our own humanity in our reporting is necessary. As the former *Washington Post* reporter Wesley Lowery stated in an op-ed in *The New York Times*, “A Reckoning over objectivity led by Black journalists”:

“We... know that neutral ‘objective journalism’ is constructed atop a pyramid of subjective decision-making: which stories to cover, how intensely to cover those stories, which sources to seek out and include, which pieces of information are highlighted, and which are downplayed. No journalistic process is objective. And no individual journalist is objective, because no human being is,” (Lowery, 2020).

As journalists of colour have long pushed to abandon objectivity, they have suggested alternatives as well. Lowery called for “moral clarity” in news coverage, urging journalists to

“devote themselves to accuracy that we will diligently seek out the perspectives of those with whom we personally may be inclined to disagree and that we will be just as sure to ask hard questions of those with whom we’re inclined to agree” (Lowery, 2020). Abandoning objectivity does not mean abandoning accuracy or truth, it is in fact the opposite; it is pushing for it rather. Masha Gessen echoed his call, writing that “moral clarity is a quest, guided by clear values and informed by facts and context, and clearly aligned with the original concept of journalistic objectivity (Gessen, 2020). Similarly, Lewis Raven Wallace called for ‘a values-based journalism that stands up to injustice,’ arguing for, ‘a reframe in how we think about the relationship between journalism, identity, community, and truth,’ as it ‘can offer a path forward for journalism that rebuilds trust with audiences, particularly those that have been long underserved by supposedly ‘objective’ news media’ (Wallace, 2020). Western journalism needs to be shaken up as it does not currently serve the public; it only serves a subset of it. Media columnist Margaret Sullivan wrote:

“I am enough of a traditionalist that I don’t like to see mainstream reporters acting like partisans—for example, by working on political campaigns. But it’s more than acceptable that they should stand up for civil rights—for press rights, for racial justice, for gender equity and against economic inequality” (Sullivan, 2020).

Press rights, racial justice, gender equity, and economic inequality are all factors of the climate crisis. Additionally, a social justice perspective would also serve in improving climate journalism, particularly in creating transparency about how newsrooms are organizing their reporting process, sharing demographics about their staff, and creating a community editorial board that would reflect the diversity of the communities they cover (Anand, 2020). Brent Cunningham, editor of the Food and Environment Reporting Network argued for “intellectual honesty,” which is extremely applicable for covering the crisis. The scientific consensus — the

truth—is that anthropogenic climate change is an issue that needs to swiftly be addressed. Applying intellectual honesty to western climate journalism would help in addressing the climate crisis.

#### *Section 2d. Complicit in the climate crisis*

Of course, it is undeniable that there were other factors that affected western climate discourse besides objectivity. The fossil fuel industry in Canada and the US has funded front groups, public relations firms, and contrarian scientists to hide their anti-environmental actions from news media and the public (despite evidence that their own scientists were aware of the harm oil and gas extraction is causing to the environment) (Dunlap & Brulle, 2020). Through these channels, they have ‘intimidated climate scientists, used SLAPP lawsuits to prevent citizen participation in policy-making arenas [...] developed and promulgated sophisticated greenwashing campaigns, and used extensive media outreach efforts to promote misinformation about climate science from well-known climate change contrarians’ (Dunlap & Brulle, 2020, p. 53). But it is also undeniable that western news media has been complicit in the efforts of the fossil fuel industry to misinform the public about the climate crisis.

Sean Holman, a journalism professor at Mount Royal University in Calgary, found that the coverage of Canada’s ‘Big Five’ petroleum corporations (Canadian Natural Resources, Suncor Energy Inc., Cenovus Energy Inc., Imperial Oil Ltd., and Husky Energy Inc.) featured a lack of interviews with climate science researchers or environmentalists, and underreported the impacts of anthropogenic climate change and negative news about the fossil fuel industries’ economic future and the damage the industry causes to the environment (Holman, 2020). Holman analyzed 173 briefs, news reports, columns, editorials, op-eds, and advertorials about the Big Five and the fossil fuel business, which were published between January 9, 2020–March 11, 2020 (Holman,

2020). The main news outlets included *The Globe and Mail* (31%), *The Canadian Press* (20%), *The National Post*, (11%), and the *Calgary Herald* (8%). Thirty-four per cent of the articles mentioned terms associated with the climate crisis, but only nine articles feature an interview with climate science researchers or environmentalists, and only seven included information about crisis' environmental impact, mostly limited to surface level information such as how much the global temperature could increase (Holman, 2020).

Postmedia, Canada's largest news media conglomerate, continues to publish articles in favour of the fossil fuel industry's profits, focusing on how climate action will affect those profits. One such article for the *Edmonton Sun* titled, "HICKS ON BIZ: Lots more oil still to come," stated, 'We don't need any more environmentally unacceptable open-pit mines in the oilsands!' while following this up in the next paragraph with the sentence, "And yes Mr. Trudeau, ensuring more pipelines actually get built is a must," (Hicks, 2020, p. 1). Not needing any more environmentally unacceptable open-pit mines, but needing environmentally unacceptable pipelines is contradictory and nonsensical, especially when knowledge of the environmental impacts of pipelines goes back decades (De Groot, 1982; Strube et al., 2021).

A column by the *Edmonton Sun* titled, David Staples: Teck Frontier dead but Conservatives trying to turn the page on oilsands rhetoric," quoted former Premier of Alberta Jason Kenney, "You're concerned about climate. So are we. Let's take concrete measures to reduce emissions instead of shutting down modernity, basically," (Staples, 2020, p. 1). Kenney equated continuing to funnel funds into the fossil fuel industry with modernity because theoretically, the profits generated from the industry will help Canada (or at least Alberta) to grow its economy and modernize cities and towns with new infrastructure and equipment. However, there is nothing

modern about continuing to destroy the environment; that it is a practice that has been taking place since the 1830s, when anthropogenic climate change began (Abram et al., 2016).

An op-ed from the Fraser Institute and Calgary Sun stated, “Many people, including experts, sincerely disagree that human-caused climate change is analogous to a ship heading for an iceberg,” (Murphy, 2020). The author supported this argument with the work of William Nordhaus who won the 2018 Nobel Peace Prize for Economics for his contributions to the study of long-term economic growth and the climate crisis. His work suggests that even if all government’s implemented an effective carbon tax, the projections of a 4.1 degrees Celsius increase in temperature by 2100 will only go down 3.5 degrees Celsius, and that the United Nations’ goal of limiting the global increase in temperature to 1.5 degrees Celsius is too aspirational and aggressive (Murphy, 2018, p. 1). Citing Nordhaus’ work to prove that many experts do not believe climate change is a significant issue is disingenuous, when Nordhaus has acknowledged that “due to developments in the physical sciences, the potential harms from climate change are worse than he believed in 2007,” (Murphy, 2018, p. 1).

A video published by the National Post, titled, “Is the end-game near for oil?” stated, “stringent climate change policies... will dampen demand for oil over the long-term,” (Financial Post, 2020, 0:45-0:49). The video framed climate change policies as the reason for oil being in the end-game, rather than the planet being a habitable place for human beings being in the end-game because of the fossil fuel industry. The National Post is among the 37.6% of Canadian paid daily newspaper circulation owned by Postmedia, Canada’s largest news conglomerate, which also owns 15 of the 22 largest English daily newspapers (Hackett & Araza, 2021).

Postmedia’s pro-fossil fuel industry position is evident in how they frame climate issues relating to the industry, their conservative columnists, and the ties of their board members to the

industry, other private-sector corporations, and the conservative party. According to researcher Bob Neubauer, “Of the top-10 mainstream media outlets whose opinion articles were most often cited in Facebook posts by six prominent online [pro-petroleum] groups, all but one (the Globe and Mail) were Postmedia dailies,” (Hackett & Araza, 2021). These op-eds and their uncritical reporting of the fossil fuel industry are recirculated by pro-petroleum advocates to legitimize their own talking points.

In 2014, the Vancouver Observer disclosed a leaked Postmedia presentation which outlined a proposed partnership between the Canadian Association of Petroleum Producers (CAPP) and Postmedia that would “link Postmedia’s sponsored energy content with CAPP’s ‘thought leadership,’” but “not influence the editorial content of Postmedia papers,” said Geraldine Anderson, CAPP spokesperson (Uechi & Millar, 2014). These are two contradictory statements as CAPP’s ‘thought leadership’ is for the fossil fuel industry and against climate policy action that would harm the industry and linking Postmedia’s sponsored energy content with that ‘thought leadership’ is influencing their content. Not to mention, the former publisher of the National Post, Douglas Kelly, stated in the presentation, “We will work with CAPP to amplify our energy mandate... The National Post will undertake to leverage all means editorially, technically, and creatively to further this critical conversation,” (Linnit, 2014). This is not journalism; this is collusion between powerful individuals and companies in two connected industries. Between 2016 and 2020, Postmedia published at least 19 op-eds by CAPP CEO Tim McMillan, and several more by other CAPP directors or executives (Hackett & Araza, 2021). Additionally, one of Postmedia’s board of directors, Wendy Henkelman, has direct links to the fossil fuel industry, holding positions in major oil and gas companies, while most of the other directors have experience in other private-sector corporations (ATB Financial, n.d., Postmedia, n.d.) Several of them have connections to the

Conservative Party, as Janet Ecker served as a senior cabinet minister for two Ontario Tory premiers, Paul Godfrey is an active Conservative, and Rod Phillips served as finance minister in former Premier Doug Ford's cabinet (Hackett & Araza, 2021). Hackett and Araza concluded their article:

“In short, Postmedia and [the fossil fuel industry] share an agenda around institutional legitimacy, political influence, and economic interests. Their relationship is often personal and informal, anchored in a shared ideology in a polarized political environment. The result? Journalism that treats [the industry] with kid gloves, and environmentalist and climate scientists with hostility” (Hackett & Araza, 2021).

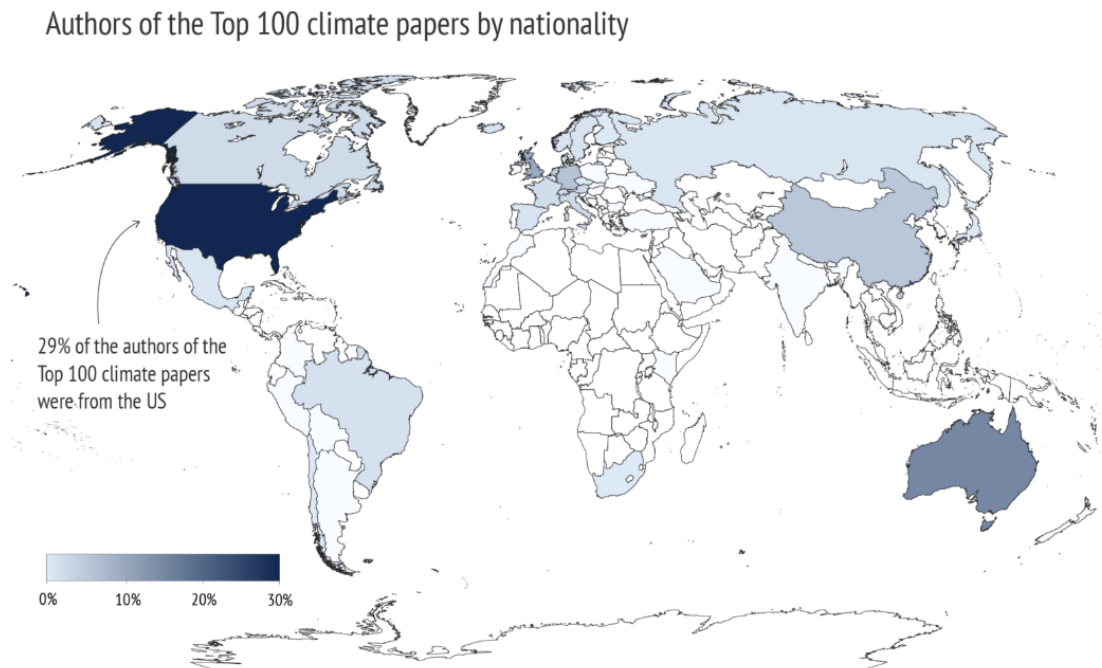
When journalists cover the fossil fuel industry, they must put pressure on these corporations and ask them more difficult questions on what they are doing to avert climate disaster. If not, the Big Five's chairs, board members, and executives will continue to be even more insulated from the global pressure against their industry. Journalists must be responsible to the truth and the public, not to the corporations that pollute this industry and this planet.



### Section 3. Lack of diversity in climate science research

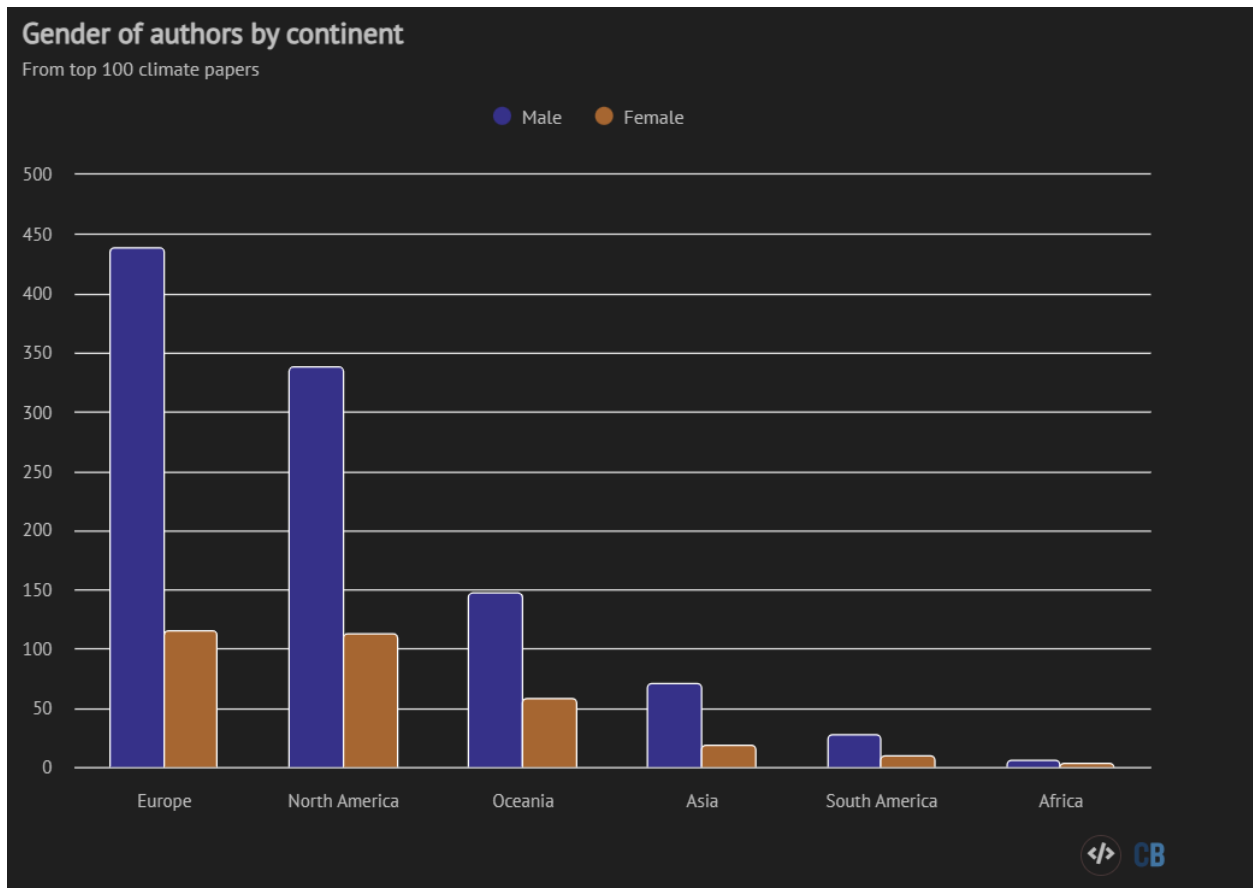
#### Section 3a. Statistics

Journalism often requires using “expert” sources and these sources are typically people whose understanding of climate issues is through a Western lens. Similar to climate journalism, there is a diversity issue in the field of climate science research as well. In 2021, Reuters published an analysis of the world’s top 1000 climate science researchers, ranking them by their level of influence. Their influence was based on three factors: the amount of research papers published by scientists on topics related to climate change, if those papers are cited by scientists in similar fields such as biology, chemistry, or physics, and if those papers are referenced in media (Reuters, 2021). People in the Global South are under-represented in this list. These factors are a western approach to quantifying influence and does not consider the different roles of climate scientists in the Global South.



**Figure 3.** The percentage of all authors from the 100 most-cited climate science papers between 2016 and 2020. Map by Joe Goodman for Carbon Brief using Natural Earth data (Tandon, 2021).

Carbon Brief did an analysis of the 100 most cited climate science papers between 2016 and 2020, recording the gender and country of affiliation for the 1,300+ authors of the papers based on Google scholar metrics data (see Figure 3). The US, Australia and the UK are the top-ranking countries on this map, accounting for more than half of all authors in this analysis (approximately 30%, 15% and 10%, respectively) (Tandon, 2021). In addition, nine out of every 10 papers in this analysis include at least one researcher from these three countries (Tandon, 2021).



**Figure 3.** The number of male (purple) and female (orange) authors in the 100 most-cited climate science papers between 2016 and 2020, shown by continent. Chart by Carbon Brief using Highcharts (Tandon, 2021).

### *Section 3b. Importance of gender diversity*

The most cited climate science papers mostly come from Global North countries and the most common climate experts found in news media are white experts, and this intersection is the root of the problem. More women and non-binary people are needed in the fields of climate journalism and climate science research, fields that exist to serve the purpose of protecting our existence and livelihoods. They are needed because gender diversity in a research environment can drive scientific discovery. For example, researchers paid greater attention to women's health issues such as heart disease, breast cancer, and autoimmune diseases as more women entered medical research in the US in the 1980s (Gewin, 2018). The climate crisis is a gendered issue that affects women and non-binary people (especially in Global South countries) differently than it does men, and climate science research that is more representative of our reality would improve our response to it.

Women and non-binary people are more vulnerable to climate impacts, partly because they constitute the majority of the world's people who live in poverty, as well as being more dependant for their livelihoods on natural resources that are threatened by the crisis. They account for “45–80% of all food production in developing countries depending on the region,” about 66-90% of the female labour force in many African countries work in agriculture (UN Woman Watch, 2009). For example, deforestation has resulted in wood—the most commonly used source of fuel in many low-income communities in the Global South—being located further away from where people live.

“Women and girls are responsible for collecting traditional fuels, a physically draining task that can take from 2 to 20 or more hours per week. As a result, women have less time to fulfil their domestic responsibilities, earn money, engage in politics or other public

activities, learn to read, or acquire other skills, or simply rest. Girls are sometimes kept home from school to help gather fuel, perpetuating the cycle of disempowerment. Moreover, when environmental degradation forces them to search farther afield for resources, women and girls become more vulnerable to injuries from carrying heavy loads long distances, and also face increased risk of sexual harassment and assault,” (UN Women Watch, 2009).

Add that to the fact that women and non-binary people have unequal access to resources and to decision-making processes (UN Woman Watch, 2009). And not only are climate impacts felt unequally, but the voices also providing solutions to these impacts are heard unequally. Dr. Lisa Schipper, research fellow at the Environmental Change Institute at the University of Oxford and co-Editor-in-Chief at the journal *Climate Development*, said:

“It’s not that women or ethnic minorities or disabled researchers inherently or biologically do research differently—but it’s about the perspectives that we bring and the way that we understand the problem—particularly with climate change, because it is a societal problem,” (Tandon, 2021).

The lack of women and non-binary voices in climate science research is depriving humankind of invaluable creativity, knowledge, and understanding of natural dynamics, which are all necessary to solving the socioecological crisis.

### *Section 3c. Academia in the Global South vs. the Global North*

According to Dr. Schipper, academia is less of a priority in many Global South countries than in the Global North for many reasons. Climate science researchers in the Global South are more focused on teaching and consulting for organizations rather than research because research

funding is not as readily available as it is in Global North countries (Tandon, 2021). They must prioritize different kinds of work to supplement their incomes. This funding discrepancy results in groups of climate science researchers from the Global North conducting most of the research concerning climate issues in the Global South. One study found that between 1990 and 2020, European and North American institutions received 78% of all funding allocated for climate research regarding African countries (Overland et al., 2021).

This inequality has helped create the practice known as parachute science or helicopter research (similar to parachute journalism), where some researchers from wealthier nations visit lower-income countries and “collect samples, publishing the results with little or no involvement from local scientists, and providing no benefit for the local community” (Adame, 2021). Since the funding comes from Global North countries, it also gives their researchers more power over the direction that the research will take. This means that “the entire system of knowledge production is skewed towards the interests of the Global North, [and] they can determine the leading theories and ideas, the adaptive courses of actions,” (Tandon, 2021). Dr. Fernanda Adame, a researcher at the Australian Rivers Institute of Griffith University experienced this herself as she conducted research in Mexico for much of her life.

“I saw foreign scientists come to our laboratory carrying high-tech instruments that we didn’t have access to. We took the scientists to our field sites and taught them about the unique ecology of the mangroves. Sometimes they used our small laboratory to store or analyse their samples. Neither I nor anyone else on the team was ever asked to contribute to the papers that were published,” wrote Dr. Adame in a career column in *Nature* (Adame, 2021, p. 1).

“Researchers in the Global South are considered to be kind of like assistants. Even if they’re very much engaged in collaborations, they don’t get authorship on papers,” said Dr. Schipper (Tandon, 2021, p. 1). Dr. Dolors Armenteras, a professor of landscape ecology at the Universidad Nacional de Colombia, mentioned that local researchers often “kneel down to people from overseas and collect data for them, or give their [own] data away,” which can sometimes result in them getting their names on the paper (Tandon, 2021, p. 1). However, this does not build scientific capacity in these countries to become science hubs like many western countries. And it is extremely important that Global South countries develop the scientific capacity to effectively prepare for, mitigate, and potentially prevent the impacts of the climate crisis disproportionately affecting them.

Christopher Trisos points out that decolonizing climate science research is not simply amplifying a diversity of perspectives.

“Power dynamics within institutions often replicate and reinforce the status quo of influence through peer review, performance metrics, grant funding and definitions of professional behaviour. Institutional cultures that are exclusionary and damaging to certain bodies and minds must continue to be transformed, and those in positions of privilege must proactively and authentically engage in positive interventions to decentre themselves and open space for others,” wrote Trisos in an article for *Nature Ecology & Evolution* (Trisos et al., 2021).

Transforming these institutional cultures would include increasing the racial and gender diversity among editors and peer reviewers for scientific journals. One study found that “mixed-gender gatekeeper teams lead to more equitable peer review outcomes,” and that a paper from Global South author was more likely to be published if it was presented to someone from a

similarly diverse background (Murray et al., 2018, p. 1). Furthermore, the existing power imbalances must be addressed through increasing the funding and support for BIPOC researchers to hold data repositories and lead programmes of data collection and analysis (Trisos, et al., 2021). This is not a question of western researchers sacrificing their power, but rather acknowledging the authority of BIPOC researchers and researchers from the Global South. Yes, “Limiting your collaborations to only those colleagues who are fluent in the same language, have good internet connection and live in the same time zone can streamline the process of research,” (Tandon, 2021, p. 1). But what good is streamlining research when it does not produce the most comprehensive and most effective research to deal with the climate crisis?

#### **Section 4. Indigenous knowledge in western climate journalism and climate science research**

A glaring omission of western climate journalism and climate science research is how little the fields value Indigenous knowledge when it comes to anthropogenic climate change. In a western lens, the climate crisis is understood as an issue of changing climatic patterns through a western scientific lens. But for Indigenous communities, the issue becomes more nuanced with factors such as “livelihoods, economic viability, adaptive capacity and vulnerability to climate impacts” that must also be taken into consideration (Brugnach et al., 2014). Western scientific knowledge has been criticized by many authors for its failure to effectively evaluate the value of local places and cultures in the context of global climatic economic models (Adger et al., 2009, Hulme, 2010, p. 561). This is evident in the fact that natural and technical sciences receive 770% more funding than social sciences for climate issues, and only 0.12% of all research funding between 1990 and 2018 was spent on the social science of climate mitigation (Overland & Sovacool, 2020). Western scientific knowledge seeks to “institutionalize Indigenous knowledge into existing environmental governance structures that are dominated by an incentive- and market-based approach to climate mitigation” (Mistry & Berardi, 2016). But Indigenous knowledge does not follow a capitalist approach to climate mitigation. “[Indigenous] knowledge systems do not interpret reality on the basis of a linear conception of cause and effect, but rather as a world made up of constantly forming multidimensional cycles in which all elements are part of an entangled and complex web of interactions” (Mazzochi, 2006). The western world thinks about how it can benefit from the resources that this land has, but Indigenous knowledge thinks about its relation(s) to the land and how to sustain that relationship.

Still, despite Indigenous knowledge and western scientific knowledge constituting different paths to knowledge, they are rooted in the same reality. There is precedent for Indigenous



political and spiritual leaders working together with western scientists on a local scale, such as granting them access to their lands to study biodiversity, but there must be compromise within western knowledge systems as well. Data sovereignty is necessary so that “Indigenous communities have the power to determine data access through their right to informed refusal for a research project, and that data collection be performed by or jointly with local people so that data ownership and use support their priorities” (Trisos et al., 2021). The implications of this will mean that some data will become more restricted, but this is a crucial step for Indigenous peoples to reclaim power in a space where they have been compelled to work with western scientists. To effectively mitigate the impacts of the climate crisis, western knowledge systems must not “assimilate local ecological knowledge within Western worldviews of managing nature,” they must acknowledge the distinct nature of Indigenous knowledge and seek to understand their perspective(s) (Mistry & Berardi, 2016). Climate science research must acknowledge this, and so must climate journalism.

An approach to climate journalism that applies Indigenous knowledge effectively also contextualizes the crisis. In 2018 when California yet again experienced intense wildfires, the reporting by Indigenous journalists “focused not on the contrast of prior policies, but rather on a fuller sense of how destruction in California wildfires might have been decreased had traditional burning practices been in place—and the resilience of this knowledge and practices,” (Callison, 2021). Wildfires are not just wildfires. They are about colonialism, infrastructure, sovereignty, and long-term relations with lands, waters, and animals. Mitigating the impacts of the climate crisis needs an approach that uses Indigenous knowledge alongside western science, that uses social science alongside natural and technical sciences. Any approach that does not use all the tools at its disposal will fail.

## Conclusion

A quote from Albert Einstein resonates today when considering how the climate crisis should be addressed. “No problem can be solved from the same level of consciousness that created it,” he said (Rainard et al., 2023). The fields of climate journalism and climate science research cannot continue operating as they currently are, as the work they are producing is not resulting in the change that we need. Newsrooms and research should reflect our reality, which is that we are different types of people existing alongside each other, trying to get through life, one day at a time. At its core, wanting to preserve and conserve our planet is egalitarian because we all benefit from this planet (although some more than others). Newsrooms and academia should be representing our collective interests, and they do not—but they should, and they can. Racial and gender diversity in the fields of climate journalism and climate science research will help produce the climate communication necessary to handle the climate crisis. Each field must also undergo fundamental changes to how they operate. For journalism, the idea of objectivity must be replaced by the ideas of moral clarity and intellectual honesty, the colonial and capitalist roots of anthropogenic climate change must be contextualized, and news organizations must commit themselves to the truth, not the fossil fuel industry. For research, Global South scientists and social science research must receive more funding, and Indigenous knowledge must be held with the same regard that western science is held with. These actions themselves will not solve the crisis—as it must be accompanied by effective climate policy action—but if western climate communication were to adopt the changes outlined in this essay, we will stand a much better chance.

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