Building a High-Quality Climate Science Information Environment:

The Role of Social Media

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Abstract:

Misinformation related to climate change has been around for decades, mostly in the form of denying the existence of global warming. Today, misinformation is manifesting in different ways, but it still has the same outcome: undermining science and delaying climate action.

Social media can significantly undermine climate science by allowing for the rapid and widespread sharing of misinformation through user-generated content and online advertising. Social media companies have made significant commitments to reduce the climate impacts of their businesses (i.e., reducing green-house gas emissions); but they also have a responsibility to mitigate the potential harms that they may be connected to through climate misinformation on their platforms.

Civil society groups and funders have an essential role to play in holding companies accountable for their actions (or lack thereof) to address climate misinformation and keeping this topic on the agenda. A focus on social media and the online climate science information environment will inform the work of civil society groups focused on climate change, as well as those working on misinformation and digital rights.

A deeper understanding of this topic will not only help remove one of the biggest boundaries in the way of climate action, but it will also broaden our understanding of scientific information, and how human rights may be impacted online.

Recomendations:

At the end of this brief, we make recommendations for action by social media companies, civil society groups, and funders. Funders have an essential role in shaping systemic improvement and industry efforts to advance policy and practices related to the climate science information environment. Our recommendations to funders include:

01.

Facilitating multi-stakeholder collaboration that brings together environmental groups and content governance experts.

02.

Supporting holistic approaches to climate science information.

03.

Building fact-checking capacity to address climate misinformation.

04.

Raising awareness of the issue and keeping it on the agenda.

Introduction and Context

The latest climate science tells us that climate change is widespread, rapid, and intensifying. In their latest report the UN's Intergovernmental Panel on Climate Change (IPCC)—considered to be the most authoritative source of climate science information—warns us that "unless there are immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach." The failure to achieve the 1.5°C goal of the Paris Agreement will bring significant adverse impacts, with extreme heat, storms, sea level rise, and wildfires threatening everyone, especially the most vulnerable.

The collective ability of governments, companies, and communities to achieve the Paris Agreement will be enabled by an information environment that supports the wide dissemination of high-quality climate science; it will be undermined by an information environment that does not.

There are four main reasons to prioritize a high-quality climate science information environment:

- **Policy Making:** Governments require science-based analysis, information, and insight to inform the development of policies, regulations, and incentives to achieve the goals set out in the Paris Agreement.
- **Business Action:** Companies require accurate and timely science-based information to facilitate planning for ambitious emissions reductions and prepare for the transition to a climate-compatible economy.
- **Public Opinion:** Governments and companies act on climate change in the context of public opinion, priorities, and pressure. It is essential that public opinion is informed by the highest quality climate science, rather than conspiracies, falsehoods, and exaggerations.
- **Human Rights:** Article 27 of the Universal Declaration of Human Rights (UDHR) establishes our right to "share in scientific advancement and its benefits", interpreted as including the wide dissemination, distribution, and availability of the highest quality, most advanced, and generally accepted science available.

Climate Misinformation[01]

Misinformation related to climate change has been around for decades, mostly in the form of denying the existence of global warming. Today, misinformation is manifesting in different ways, but it still has the same outcome: undermining science and delaying climate action.

The second installment of IPCC's latest report, published in March 2022, draws attention to the impacts of climate misinformation for the first time: "Despite scientific certainty of the anthropogenic influence on climate change, misinformation and politicization of climate change science has created polarization in public and policy domains in North America, particularly in the US, limiting climate action. Vested interests have generated rhetoric and misinformation that undermines climate science and disregards risk and urgency. Resultant public misperception of climate risks and polarized public support for climate actions is delaying urgent adaptation planning and implementation."

At a point when delays in climate action may lead to catastrophic and irreversible harm, companies must address climate misinformation urgently and decisively.

01 Misinformation refers to content that is false or inaccurate. Disinformation is a subset of misinformation, and it generally refers to misinformation content that is shared with the intent to deceive. Throughout this brief, the term "misinformation" is used as it is a broader category, except when referring to specific instances such as "organized disinformation campaigns."

The Role of the Media and Social Media

Climate science information is disseminated to the public through traditional media sources, such as news channels, and increasingly through social media. It is important to understand the relationship between these two fields, as well as the different issues that manifest in each. User generated content found in social media, and professional/premium content found in mainstream media pose different challenges and require different approaches in dealing with misinformation.

Traditional media channels utilize social media platforms to disseminate professional content, and it has been shown that the majority of climate disinformation content on social media platforms come from professional media sources. While traditional media has established processes in place to deal with misinformation, social media platforms are dealing with new challenges.

Social media brings both opportunities and risks for creating a better climate science information environment. For example, scientific information related to climate change is made accessible to larger populations through social media platforms, including the knowledge and experiences of different populations. Social media platforms help climate activists come together and foster conversation about climate change that may encourage climate action.

On the other hand, social media can significantly undermine climate science by allowing for the rapid and widespread sharing of misinformation through user-generated content and online advertising. Environmental groups and activists such as the Climate Disinformation Coalition and Avaaz, research organizations such as Influence Map, and campaigns such as Stop Funding Heat are documenting how social media platforms are used to spread climate misinformation and they are demanding action from companies.

Social media companies have made significant commitments to reduce the climate impacts of their businesses (i.e., reducing GHG emissions); but they also have a responsibility to mitigate the potential harms that they may be connected to through climate misinformation on their platforms.

Implications for Civil Society Actors

Civil society groups and funders have an essential role to play in holding companies accountable for their actions (or lack thereof) to address climate misinformation and keeping this topic on the agenda. A focus on social media and the online climate science information environment will inform the work of civil society groups focused on climate change, as well as those working on misinformation and digital rights. A deeper understanding of this topic will not only help remove one of the biggest boundaries in the way of climate action, but it will also broaden our understanding of scientific information, and how human rights may be impacted online.

In this issue brief, we discuss the role of the social media companies in creating, shaping, and maintaining a high-quality climate science information environment. We outline issues, challenges, and opportunities for action. We explore implications for actors working at the intersection of climate justice and technology. Finally, we make recommendations for action by social media companies, civil society groups, and funders. Throughout the brief, we reinforce the need for a human rights-based approach that can help companies identify and address the adverse human rights impacts associated with climate misinformation on their platforms.

This issue brief has been informed by desk research, as well as interviews with social media companies, civil society organizations, and researchers.

The Climate Misinformation Problem

Before exploring the role of social media companies, it is important to understand the different manifestations and characteristics of climate misinformation—both on traditional media and social media. The following observations inform the remainder of this brief, including our recommendations.

- **The ways in which climate misinformation manifests are constantly evolving.** Traditionally, climate misinformation focused on denying the existence of climate change; however, with the overwhelming consensus on the existence of anthropogenic global warming, levels of climate denialism have significantly decreased. Today, climate misinformation is focused on seeding doubt about climate science and about the effectiveness of the measures that are used to mitigate climate change; as a result, discouraging people from action. For example, suggesting that the consequences of global warming may not be as bad as scientists claim, arguing that climate change policies are bad for the economy or national security, painting clean energy as unreliable, depicting the fossil fuel industry as an important part of the solution (i.e., greenwashing or wokewashing), disproportionately focusing on the role of individual lifestyle choices and deflecting attention away from systemic solutions, or claiming that no action will be able to halt climate change (i.e., doomism). Researchers have suggested various taxonomies to categorize different types of climate misinformation.[02]

- **Climate misinformation is happening in "subtler" ways.** While outright climate denialism is easy to refute with facts, it is more difficult to identify subtle ways of climate misinformation—such as claims that green

02 See Deconstructing Climate Denial by John Cook and Computer-assisted detection and classification of misinformation about climate change.

policies are too costly. Such claims are "half-truths" that imply misinformation only when considered within a larger context. Cherry-picking information or presenting misleading facts may be even more dangerous than outright climate denial, because they are more difficult to identify, and they have the potential to be more persuasive.

- **Climate silence can be considered another form of misinformation.** Even though the real-world impacts of climate change are now evident, such as extreme weather events and natural disasters, media coverage of these impacts often doesn't make the connection to climate change. The failure to demonstrate the connections between climate change and its impacts may undermine the information environment by omitting important context.[03]

- **Geographical and cultural nuances affect the impacts of climate misinformation.** The impacts of climate change are not equally felt across the world. Similarly, public opinion and knowledge on climate change, as well as government policies also varies by geography. As companies address climate misinformation, these nuances should be considered.[04]

- **Climate misinformation is increasingly intersectional.** The response to climate change is a topic of political debate, making climate misinformation closely tied to politics, elections, and the larger civic space. The disinformation campaign that took place during the Texas blackout in February 2021 depicts how closely intertwined climate misinformation is with the political debate in the US. Research has also shown ties between climate deniers and conspiracy groups like QAnon, suggesting that the issue may be linked to topics like hate speech or COVID-19 conspiracies. These intersectionalities help grow the reach of misinformation and take it to different levels that might be difficult to anticipate.

- **Climate misinformation is political and is backed by institutions.** Since the 1980s, climate disinformation campaigns have been largely driven by the fossil fuel industry's intentional efforts to undermine climate science. Oil and gas companies and their lobbyists have spent vast amounts of money to influence policymakers and manufacture uncertainty about the existence of climate change. The US Congress has started to

03 The End Climate Silence campaign tries to increase media coverage of climate change.

04 See International Public Opinion on Climate Change and International Public Support for Climate Action, based on research conducted by the Yale Program on Climate Change Communication and Meta's Data for Good program. See also Relationships among conspiratorial beliefs, conservatism and climate scepticism across nations.

take steps to address the issue by calling oil executives to testify about their role in spreading disinformation. In their latest report, the IPCC calls out how "vested economic and political interests have organized and financed misinformation." Today, climate misinformation can still typically be traced to fossil fuel interests and right-wing media. In addressing climate misinformation, it is important to consider the material incentives of the producers of such content.

A Human Rights Based-Approach to Addressing Climate Misinformation

The UN Guiding Principles on Business and Human Rights (UNGPs), which were unanimously endorsed by the UN Human Rights Council in 2011, set out the business responsibility to respect human rights. According to the UNGPs, companies are expected to identify, prevent, and mitigate their adverse human rights impacts, including the downstream impacts of their products and services.

Compliance with standards based on the UNGPs is becoming regulatory requirement of companies in several European countries, and will soon become a requirement of all companies operating in the European Union via a mandatory corporate due diligence law.

In this section, we explore the potential human rights impacts that may be associated with climate misinformation on social media platforms. Companies should undertake in-depth human rights due diligence to understand their connection to these impacts and decide on mitigation measures.

Human rights	How social media companies may impact these rights through climate misinformation
Right to science *Article 27 of the Universal Declaration of Human Rights (UDHR) sets out the right to "share in scientific advancement and its benefits."*	Social media platforms are a major source of scientific information, and they provide opportunities for scientific discussion. Connecting people to accurate data, expert advice, and high-quality information about climate change is both an opportunity and a responsibility for social media companies. Companies' failure to address climate misinformation may have adverse impacts on the right to science.
Right to freedom of expression *Article 19 of the Universal Declaration of Human Rights (UDHR) sets out the right to "freedom of opinion and expression," which includes the "freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers."*	Climate misinformation and the failure to maintain a high-quality climate science information environment may adversely impact individuals' right to access high quality information on climate change. On the other hand, over-enforcing misinformation policies may have adverse impacts on freedom of expression. Limiting freedom of expression may also restrict opportunities for discussion, which is an important part of the scientific process, resulting in adverse impacts on the right to science.

Right to a healthy environment *Resolution 48/13 of the UN Human Rights Council, adopted in October 2021, recognizes "the human right to a clean, healthy and sustainable environment."*	Failure to maintain a high-quality information environment may exacerbate global warming by delaying action on climate change, resulting in adverse impacts to individuals' right to a healthy environment, and exacerbating existing inequities. A healthy environment is a precondition for the realization of other human rights, including the rights to life, food, and health.
Right to health *Article 12 of the International Covenant on Economic, Social, and Cultural Rights (ICESCR) recognizes "the right to the highest attainable standard of health."*	Climate change is affecting individuals' health. Misinformation, or a lack of information on climate change and its impacts, may violate the right to health, with disproportionate impacts on vulnerable populations.
Right to life, liberty, and personal security *Article 3 of the UDHR states that "Everyone has the right to life, liberty and security of person."*	Climate change is affecting individuals' health and livelihoods and leads to an excess number of deaths globally. Misinformation, or a lack of information on climate change and its impacts, may violate the right to life, liberty, and personal security with disproportionate impacts on vulnerable populations.

Other rights that may be impacted include the right to an adequate standard of living; the right to own property; the right to participate in government and in free elections.

The Social Media Response

Social media companies typically have a three-fold approach to dealing with misleading or harmful content on their platforms: (1) **removing** content that violates their policies, (2) **reducing** the distribution of content that may be misleading, and (3) **raising** the prevalence of authoritative content to **inform** their users.[05] Additionally, social media companies have separate policies for **paid speech**, i.e., advertising, selling, and monetizing content on their platforms. In this section we look at how each of these approaches are being used to address climate misinformation and highlight some of the challenges that companies are facing along the way.

01. Remove

Social media platforms rely on content policies[06] to moderate content on their platform. These policies define what type of content is not allowed on the platform, such as hate speech, violent content, child sexual abuse material, or nudity. When it comes to misinformation, platforms typically don't have clear red lines since information is not static (i.e., what is considered true today may not be considered true tomorrow) and it's more difficult to enforce rules around misinformation. Today, platforms remove misinformation only when it's likely to lead to physical harm, or when it's likely to interfere with the democratic process.

Each platform has different criteria on what constitutes as misinformation that may lead to harm. For example:

05 See Meta's Three-Part Recipe for Cleaning up Your News Feed and YouTube's Four Rs of Responsibility as examples.

06 Content policies are used by social media companies to outline what is and isn't allowed on their platforms. Most social media companies have separate content policies that address organic user-generated speech (often called Community Guidelines or Community Standards) and paid speech (e.g., advertising, monetization, and commerce policies).

- **Meta** removes misinformation "where it is likely to directly contribute to the risk of imminent physical harm," and the categories of misinformation they remove are: 1) physical harm or violence, 2) harmful health misinformation, 3) voter or census interference, and 4) manipulated media.
- **YouTube** does not allow "certain types of misleading or deceptive content with serious risk of egregious harm," and defines harm as "real-world harm, like promoting harmful remedies or treatments, certain types of technically manipulated content, or content interfering with democratic processes."
- **TikTok** removes misinformation "that causes significant harm to individuals, our community, or the larger public," and defines significant harm as including "serious physical injury, illness, or death; severe psychological trauma; large-scale property damage, and the undermining of public trust in civic institutions and processes such as governments, elections, and scientific bodies. This does not include simply inaccurate information, myths, or commercial or reputational harm."

None of the major social media platforms include climate change in their misinformation policies[07], implying that they do not view climate misinformation as something that is likely to lead to physical harm, especially *imminent* physical harm. As a result, platforms currently do not remove climate misinformation from their platforms.

07 In April 2022, Pinterest became the first digital platform to publish a climate misinformation policy.

Climate Misinformation and Harm

Climate change represents an imminent threat of real-world harm, and content that questions climate science should be addressed accordingly.

However, in the context of climate change, there are two challenges that make it difficult to connect misinformation to harm:

01. The causal relationship between misinformation and physical harm may be more difficult to establish, compared to misinformation that might lead to physical violence or adverse health outcomes, for example.

02. The lack of "specificity," i.e., there is typically not a specific link between a specific piece of content and the specific harms that it may lead to, but the combination of different pieces of content may have cumulative impacts. The concept of specificity features prominently in how social media companies implement their content policies.

Below, we suggest a simple framework that outlines how climate misinformation may lead to physical harm:

- Information (and misinformation) shared on media platforms influences public opinion and discourse on climate change. For example, it has been shown that organized disinformation campaigns on climate change **have generated skepticism towards global warming**.
- Public opinion about climate change influences climate policies. For example, it has been shown that belief in the certainty of global warming, and perceptions of risk **impact people's level of support for climate policies**.
- Climate policies influence the actions of governments and businesses, which in turn lead to increased GHG emissions.
- The real-world impacts of increased emissions have been clearly set out by authoritative bodies. For example, the IPCC outlines the observed and projected impacts of climate change, including **risks to people's health, lives, and livelihoods**.

Climate misinformation contributes to the irreversible physical harm that is caused by climate change. Social media companies should work with environmental groups to lay out the causal relationship between the different types of climate misinformation and physical harm, so that they can take action to address the impacts associated with their platforms.

Taking a human rights-based approach would help establish the relationship between misinformation and harms to people by:

- Identifying the precise human rights harms that climate misinformation can lead to.
- Prioritizing company action based on the severity and likelihood of harm.
- Considering impacts on vulnerable populations.
- Providing guidance on appropriate action based on the company's attribution to harm and its leverage to address it.

COVID-19 and the Definition of Harm

The actions of social media platforms to address COVID-19 misinformation provide a useful case study. During the pandemic, major social media platforms included COVID-19 and vaccine related misinformation under their content policies.

The COVID-19 content policies of some of the major social media platforms, such as **Facebook** and **YouTube**, outline the different types of misinformation that are not allowed on their platforms, with the justification that they may lead to harm. Platforms have worked with public health authorities such as the World Health Organization (WHO) to determine what these categories are, and they have expanded on their definitions of harm. For example, **Facebook's policy** states "imminent physical harm examples include: increasing the likelihood of exposure to or transmission of the virus, or having adverse effects on the public health system's ability to cope with the pandemic."

A similar exercise may be necessary for climate misinformation. The definition of harm can usefully be expanded on to include content that encourages the use of fossil fuels or has adverse effects on governments' ability to cope with the climate crisis for example. Companies can work with authoritative bodies like the IPCC to come up with this definition and identify the specific categories of misinformation that are more likely to lead to harm in the context of climate change.

The removal of content may seem like the logical response to addressing misinformation. However, companies should not *only* rely on this tactic (and also focus on tactics to reduce the visibility of misinformation and raise high quality information to inform users) for several reasons:[08]

- Debate and discussion are a crucial part of the scientific process, and it's important to protect these. However, when these discussions pose risk of harm to individuals and society, they should be mitigated. In moderating climate misinformation on their platforms, companies need to strike a balance between addressing content that undermines climate science while also maintaining the grounds for open discussion and debate for the creation of further climate science.
- The substitutability effect, i.e., if you remove a piece of content or deplatform users on one platform, they can easily move to smaller platforms that don't have the same fact-checking capabilities as some of the bigger platforms. Pushing misinformation content towards harder-to-address corners of the internet may increase the risk of harm.

08 See The online information environment published by the Royal Society, the United Kingdom's senior scientific academy.

02.Reduce

The main way in which platforms address climate misinformation is by reducing the visibility of content. Platforms have different ways of doing this, including ranking them lower in search results or in the newsfeed, using warning labels, and prompts to limit the sharing of content.

The impact of these interventions is still unknown—for example, a recent study found that "messages with warning labels spread further and longer on Twitter than did those without labels before and after the 2020 presidential campaign." Further, warning labels may have unintended consequences when used at scale, such as the implied truth effect, which suggests that labeling content may result in people more easily believing false information without labels. On the other hand, studies also demonstrate that showing prompts when sharing articles that haven't been read reduces the spread of misinformation.

Most of the major social media platforms work with independent fact-checking organizations[09] to review misinformation content and identify which ones will be subject to these interventions. The content that goes through fact-checking (i.e., potential misinformation) is flagged through signals, such as user reports, or picked by fact-checkers themselves. Fact-checkers review potential misinformation and rate its accuracy. Content that receives certain ratings get labeled and their visibility is reduced on the platform.

In our conversations with social media companies, we've heard that in addition to obvious hoaxes, they started addressing misleading content on climate change as well. However, recent research on climate misinformation on Facebook shows that only a very small percentage of climate misinformation content goes through fact-checking. There might be several reasons that constrain effective fact-checking on climate misinformation:

- The processes with which "potential misinformation" is identified may not be picking up on all forms of climate misinformation.
- The ratings that are used by fact-checkers[10] may not be accounting for the more subtle forms of climate misinformation. For example, it is unclear

09 See Meta's Fact-Checking Program and a list of their fact-checking partners in different regions as an example. Most social media platforms work with fact-checking organizations that are certified by the International Fact-Checking Network (IFCN). The number of fact-checking programs focused on social media is growing globally. An example of climate-focused fact-checking organizations that partner with social media platforms is Climate Feedback.

10 See a list of Meta's rating options for fact-checkers.

whether options such as Meta's "Missing Context" rating apply to climate misinformation content in the form of cherry-picking information.

- Misinformation within content that is labeled as "opinion" may be going unnoticed as opinion articles are typically exempt from fact-checking on social media platforms. In the context of climate science where the body of scientific information expands every day it may be particularly challenging to distinguish fact from opinion, especially when it comes to mitigation measures. This makes it even more important for social media platforms' fact-checking programs to be equipped with the latest climate science.

03. Raise / Inform

In addition to removing and reducing misinformation, it is equally important for social media companies to inform their users and build resiliency against misinformation. A recent report by the Royal Society, the United Kingdom's senior scientific academy, suggests that relying on the removal of content is not adequately effective in fighting scientific misinformation, and recommends that companies employ wide-ranging tactics "to build collective resilience" so that "high quality information can compete in the online attention economy".

There are a few ways in which social media platforms are currently attempting to do this:

- **Providing authoritative information:** Social media platforms are exploring different ways in which they can provide authoritative climate science information. Examples include Meta's Climate Science Center, their Facts About Climate Change partnership, YouTube adding Wikipedia pop-ups, and Twitter's efforts to pre-bunk climate misinformation. Companies have not yet published metrics about these interventions and there isn't sufficient research to prove the effectiveness of these methods.

- **Increasing climate conversation and inspiring action:** Climate change is a very small percentage of the conversation that takes place on social media platforms today. Survey results indicate that people want more information about climate change and that the amount of people talking about climate change is significantly lower than the amount of people who feel alarmed or concerned about it. Social media companies have initiated efforts to increase conversation and user engagement on climate change on their platforms, such as Meta's Elevating Climate Voices pro-

gram. Another way in which social media companies may be helpful in inspiring climate action is providing tools that give consumers more information. Examples include Google's tools for consumers to make more sustainable choices.

+ **Sharing data and research that can benefit climate communications:** Creating a high-quality climate science information environment is not something that social media companies can do alone, but the data and research capabilities that these companies have may be very beneficial for the field of climate science communications more broadly. The online information environment on climate change can reveal insights and trends about climate science communications and help push the field forward. Meta's Climate Conversations program is a great example of this.

4. Paid Speech

In the social media context, there is a distinction between organic user-generated speech, and paid speech. Paid speech can be amplified and targeted; these two features present different risks. Platforms typically have more control and leverage over paid speech compared to organic speech, and the content policies for paid speech are typically way stricter.

Google announced in October 2021 that they were going to "prohibit ads for, and monetization of, content that contradicts well-established scientific consensus around the existence and causes of climate change," and Meta does not allow ads that have been rated by their fact-checking partners.

Within paid speech, fossil fuel industry ads are one of the main sources of climate misinformation. A recent report by Influence Map found that social media platforms are a key avenue of advertising for oil and gas companies, and "the messaging included in these ads is misaligned from the science of climate change according to the Intergovernmental Panel on Climate Change's and the International Energy Agency's analyses on reaching net zero emissions by 2050." Activists argue that surfacing ads from fossil fuel companies and their lobbyists is a form of climate denial and a dereliction of company duty towards the public.

On the other hand, due to social media platforms' ad policies that categorize climate change as political content, civil society groups are having challenges promoting their messages on these platforms. Content that is categorized as political is often restricted or subject to additional reviews. The amount of resour-

ces required to circumvent these policies are **pushing environmental groups to leave social media platforms**, which may result in an online information environment where the essential voice of civil society is not adequately heard.

Ads by oil and gas companies or trade associations like the American Petroleum Institute (API) have been able to circumvent these policies by focusing on "environmental stewardship," even though they are clearly an important part of the political debate on climate change. Activists are **drawing attention** to this "loophole" that is creating an unfair playing ground for advocates of climate action.

Principles of Content Governance

There are standards and principles that guide the moderation and restriction of online speech on social media platforms. It is important for environmental groups to be aware of these principles and apply them to climate misinformation.

- **International human rights law** defines four key principles (see UN General Comment 34) for governments to use when making decisions to restrict freedom of expression. These have subsequently been used by companies to shape their own practices. Decisions should take into account whether restrictions are necessary (i.e., the same goal cannot be achieved by other means), proportionate (i.e., restrictions are not overbroad and are the least intrusive to achieve the legitimate purpose), legitimate (i.e., the precise nature of the threat to human rights is clear), and nondiscriminatory (i.e., restrictions are implemented in a nondiscriminatory manner). The Facebook Oversight Board's case decisions provide analysis against each of these principles, demonstrating how they can be applied in practice.

  We believe that it would be a worthwhile exercise to apply these principles to climate misinformation. For example, what would be a necessary and proportionate response to climate misinformation? Can companies achieve the same goal through other means? Is there a clear and precise threat to human rights? How can restrictions on speech be applied in a nondiscriminatory manner?

- The Santa Clara Principles on Transparency and Accountability in Content Moderation outlines standards for social media platforms to provide transparency and accountability around their efforts to remove online con-

tent. It is a content moderation framework based on international human rights standards. Major social media companies including Meta, Twitter, and YouTube have **publicly endorsed** these principles.

+ **The Rabat Plan of Action** suggests a threshold test for defining restrictions on freedom of expression as it relates to the incitement to hatred. It outlines a six-part threshold test taking into account (1) the social and political context, (2) status of the speaker, (3) intent to incite the audience against a target group, (4) content and form of the speech, (5) extent of its dissemination and (6) likelihood of harm, including imminence. It introduces the concept of "imminent harm" that many social media platforms use in their content removal policies.

+ **The UN Guiding Principles on Business and Human Rights (UNGPs)** clearly state that companies have a responsibility to address the adverse human rights impacts with which they are involved, including the responsibility to prevent or mitigate adverse human rights impacts that are directly linked to their operations, products, or services. User-generated content clearly has a connection to adverse human rights impacts, and therefore a human rights-based approach to content governance is essential to meet the responsibility companies have to address this connection. BSR's report **A Human Rights-Based Approach to Content Governance,** describes how a UNGPs-based framework can be applied to the overall system of content governance at social media companies.

Recommendations

We make recommendations for three groups of actors: social media companies, civil society organizations (including those focused on environmental issues and digital rights), and funders.

Recommendations for Social Media Companies

Social media companies have the primary responsibility for creating, shaping, and maintaining a high-quality climate science information environment on their platforms and improvements to their practices will have a significant impact the effectiveness of climate action.

01 • **Explore how to include climate misinformation under content policies.** Companies should work with authoritative bodies like the IPCC to explore and understand the connection between climate misinformation and physical harm. The types of misinformation that are most likely to lead to physical harm should be included under companies' content policies—where relevant, taking inspiration from how COVID-19 misinformation is being handled today. Existing climate misinformation taxonomies and definitions suggested by environmental groups can help companies define climate misinformation and capture the wide range of misinformation claims. As the manifestations of climate misinformation evolve over time, companies should review and update their policies as needed. These policies should consider the geographical and cultural nuances of climate misinformation, as well as its increasingly intersectional nature.

02 • **Apply content moderation frameworks to climate misinformation.** Most of content moderation principles and frameworks listed earlier in this brief were written to address harms related to hate speech, incitement to

violence, and other objectionable content, and may not be as applicable for scientific misinformation that may lead to broader, longer-term harms. Companies should apply these frameworks to climate misinformation to identify the gaps in current approaches and adapt them to address the unique characteristics of climate misinformation. Collaboration between companies, civil society groups, and academics (perhaps as part of a multi-stakeholder endeavor) could be an effective approach here.

03. **Strengthen fact-checking capabilities on climate change.** Companies should ensure that there is sufficient climate expertise informing their fact-checking programs and that their fact-checking processes are effectively identifying and addressing misinformation. This may include (1) improving the processes that flag potential misinformation, (2) expanding rating options for fact-checkers so that all types of climate misinformation are appropriately covered, and (3) ensuring that fact-checking programs accurately distinguish between fact and opinion in the context of climate change.

04. **Invest in building user resiliency against climate misinformation.** This may include further research on the effectiveness of warning labels and interstitials, informing users on misinformation interventions, investing in provenance-enhancing technologies to help users understand the context behind content, helping users make the connections between climate change and its impacts, and continuing to direct users to authoritative climate science content. Companies should share metrics and data about these interventions to enable research and improve their effectiveness.

05. **Increase scrutiny on advertising by oil and gas companies.** Misleading ads surfaced by oil and gas companies can significantly undermine climate science and climate action. Taking a risk-based approach, social media companies should subject ads from these companies and their lobbyists to increased scrutiny and should consider banning paid ads from the industry. Google's 2020 announcement that they will not build AI tools for the oil and gas industry is a good example of tech companies making business decisions that don't support further fossil fuel extraction.

06. **Ensure that advertising policies provide a fair playing field for civil society actors.** Social media companies' ad policies, which categorize climate change as a political issue and subject ads with climate messaging to additional controls, are weakening the ability of civil society groups to communicate messages through these platforms. Companies should ensure that their advertising policies don't favor companies over civil society actors who want to promote climate-related messages.

07 • **Pay special attention to high-risk moments in the climate calendar.** The amount of climate misinformation present on media and social media channels increase around the time of important events, such as the UN Climate Change Conferences (COP), elections etc. Companies should pay special attention to these moments to effectively address misinformation.

08 • **Adopt a human rights-based framework to content governance relating to climate misinformation.** Social media companies are connected to human rights impacts through climate misinformation on their platforms. It is a challenging task to balance respecting users' freedom of expression rights while also protecting others from harm. Taking a human rights-based approach to this challenge will help ensure alignment with internationally agreed norms and consistency across borders.

09 • **Share data with misinformation researchers to help advance climate science.** Companies should give access to data and algorithmic models to facilitate further research on climate misinformation, including the effectiveness of interventions. This would also help advance the broader field of climate science communication and accelerate climate action.

10 • **Be transparent about the governance, risks, strategy, metrics.** It is important for companies to be held accountable for their actions as it relates to climate science information. Companies should be transparent about the following[11]: 1) governance (policies, principles, and decision-making processes relating to climate change information), 2) risks (the risks each company faces relating to climate change information), 3) strategy (the strategies in place to address risks and opportunities), and 4) metrics (the quantitative and qualitative indicators used to assess progress, such as the volume of misinformation and disinformation discovered and removed, or the volume of professional media content dedicated to spreading high quality climate science). This would enable more effective engagement between companies and civil society groups keeping them accountable.

11 • **Facilitate collaboration between content governance and sustainability teams.** Environmental sustainability teams at companies have significant knowledge on climate change and business responsibility to address climate change. The teams that develop and implement content policy at social media companies should tap into the know-how and networks of sustainability teams.

11 The elements of transparency we suggest here are based on the framework developed by the Task Force on Climate-related Financial Disclosures (TCFD) to help public companies and other organizations disclose climate-related risks and opportunities.

12. **Address climate misinformation as part of the company sustainability strategy.** A holistic approach to company climate impacts should include misinformation as it is a salient issue for social media companies. This includes discussing climate misinformation in company sustainability reports. Addressing climate misinformation as part of the overall sustainability strategy can help push the agenda on this topic, both internally and externally.

13. **Collaborate as an industry and with civil society.** Climate misinformation is a pressing issue for the tech industry and companies would benefit from increased collaboration with each other. This may include aligning on an industry-wide definition of climate misinformation, agreeing to common principles, creating a repository of climate misinformation content across platforms, and sharing insights for policy makers. Additionally, increased collaboration with civil society actors can significantly help inform the industry's thinking on this issue and help establish a common language.

Recommendations for Civil Society Actors

Civil society organizations play an essential role in creating, shaping, and maintaining a high-quality climate science information environment by advocating for change and holding companies accountable for their practices.

01. **Increase collaboration between environmental groups and digital rights groups.** It is our observation that environmental groups are less familiar about the practical challenges, complexities, and nuance of misinformation, and the content governance community is less familiar with how climate information can adversely impact our collective efforts to address the climate crisis. These communities would benefit from increased collaboration and knowledge sharing.

02. **Apply content moderation frameworks to climate misinformation.** Most of content moderation principles and frameworks listed earlier in this brief were written to address harms related to hate speech, incitement

to violence, and other objectionable content, and may not be as applicable for scientific misinformation that may lead to broader, longer-term harms. Civil society groups can help companies apply these frameworks to climate misinformation to identify the gaps in current approaches and adapt them to address the unique characteristics of climate misinformation. Collaboration between companies, civil society groups, and academics (perhaps as part of a multi-stakeholder endeavor) could be an effective approach here.

03. **Help establish the relationship between climate misinformation and physical harm.** The causal relationship between climate misinformation and physical harm is not as clear as it is with other types of content, and climate misinformation typically lacks specificity (i.e., there is typically not a specific link between a specific piece of content and the specific harms that it may lead to, but the combination of different pieces of content may have cumulative impacts.) Civil society groups can help companies understand the connection between climate misinformation and physical harm so that they can more easily take action to address the impacts associated with climate misinformation.

04. **Approach climate science information holistically.** Rather than just focusing on content removal, civil society groups should consider the broader climate science information environment. This may include working with companies to provide high-quality climate science information to users, providing expertise on climate communications, or developing climate literacy and engagement programs.

05. **Keep companies accountable for their actions as it relates to climate science information.** This may include pushing companies to be more transparent about their strategies to address climate misinformation or include relevant metrics in their sustainability reports. Tools such as the Ranking Digital Rights Corporate Accountability Index may be useful.

06. **Engage directly with companies—both with sustainability teams and content governance teams.** Civil society groups should proactively engage and collaborate with companies rather than only reactive engagements. Typically, social media companies have sustainability teams that focus primarily on operational impacts, and content governance teams that focus primarily on content policy and its enforcement. Climate misinformation can be best addressed via collaboration between these teams, and it should be an important topic on both teams' agendas.

07. **Don't forget the other actors.** Social media platforms are not the only actors in the climate science information environment. Civil society groups should also work with others in the tech industry and beyond, including 1) other tech platforms such as online retailers, 2) media and entertainment companies, 3) digital ad platforms, 4) payment processors and crowdfunding platforms.

Recommendations for Funders

In addition to funding and supporting civil society groups, funders also have an essential role in shaping systemic improvement and industry efforts to advance policy and practices related to the climate science information environment.

01. **Facilitate multi-stakeholder collaboration that brings together environmental groups and content governance experts.** It is our observation that environmental groups are less familiar about the practical challenges, complexities, and nuance of misinformation, and the content governance community is less familiar with how climate information can adversely impact our collective efforts to address the climate crisis. Funders should fund and facilitate multi-stakeholder collaboration that brings together these communities for a shared agenda of knowledge sharing, collaboration, and action. Additionally, through direct engagement with social media companies, funders may be able to encourage dialogue between these civil society groups and companies.

02. **Support holistic approaches to climate science information.** Improving the climate science information environment requires a holistic approach that considers all aspects of the problem (not just misinformation) and all actors that help create the information environment (not just social media companies). Funders should help move the conversation beyond just removing misinformation content. This may include funding innovative climate literacy solutions or methods to communicate scientific information more effectively to the public, supporting independent journalism, funding civil society groups to monitor climate misinformation and measure the effectiveness of interventions.

03 • Build fact-checking capacity to address climate misinformation. Existing fact-checking programs by social media companies do not sufficiently address climate misinformation. Fact-checking methods and processes need to be improved in ways that account for the unique characteristics of climate misinformation. Funders can help build capacity among fact-checking organizations. The **grant program by Meta and IFCN** may surface specific needs and opportunities for capacity building.

04 • Raise awareness of the issue and keep it on the agenda. Public awareness of climate misinformation has been on the rise recently thanks to **controversial cases**, **attention from the US Congress**, and **acknowledgment by the UN**. Funders should use this momentum to continue raising awareness of the issue and keep it on the radar of stakeholders. It will be especially important to expand the corporate sustainability agenda to include climate science information and push companies to realize their responsibility in creating a high-quality climate science information environment.