



# Communicating Climate Change: Where Did We Go Wrong, How Can We Do Better?

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## Abstract

This chapter traces the historical trajectory of climate change communication theory, and practice, including the cultural and social context for attitudes and beliefs around climate change and intersections between development communication and climate change communication. It also identifies particular challenges

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to the field and maps out the current landscape for scholars and practitioners. The main findings support previous development communication research that suggests the distribution of information is not enough to generate sustained engagement with either climate change advocacy or individual behavior change. Climate change communicators are most effective when they focus on positive solutions and appeal to specific local communities. Scholars must do a better job sharing their work across disciplines and with practitioners in the field, and finally, all communication efforts and their evaluation processes would benefit from sustained long-term engagement.

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**Keywords**

Climate change communication · Media framing · Advocacy and social movements · Effective evaluation

In the summer of 2017, right in the middle of the planet's hottest non-el Niño year and one of the three hottest years on record (World Meteorological Association 2017), *New York Magazine* published a controversial and widely read article "The Uninhabitable Earth" with the subhead: "Famine, economic collapse, a sun that cooks us: What climate change could wreak – sooner than you think" (Wallace-Wells 2017). The article paints a terrifying and apocalyptic picture of an inevitably doomed planet. It was controversial for many reasons, but critics and supporters primarily focused on the content and the tone. Some scientists said it was hyperbolic, referring to it as "climate disaster porn" (Cohen 2017). Still others, focusing on how different publics respond to information about climate change, noted that people respond better to hopeful messages, not fatalistic ones (O'Neill and Nicholson-Cole 2009). Acting becomes harder, they argue, when people think there is nothing they can do to change the current situation.

It is not hard to see why readers might come away from the article believing there is nothing they can do about climate change. "The Uninhabitable Earth" cites science-supported research that documents a 50-fold increase in the number of places experiencing dangerous or extreme heat over the last 40 years with bigger predicted increases to come. Droughts may cause massive food shortage and forced migration as a result of some of the world's most arable land turning to desert. According to the article:

By 2080, without dramatic reductions in emissions, southern Europe will be in permanent extreme drought. . . The same will be true in Iraq and Syria and much of the rest of the Middle East; some of the most densely populated parts of Australia, Africa, and South America; and the breadbasket regions of China. None of these places, which today supply much of the world's food, will be reliable sources of any.

The apocalyptic consequences of unmitigated climate change also include increased risk of diseases that thrive in warmer climates, increasingly unbreathable air from small

particles emitted from fossil-fuel burning and wildfire smoke, and more conflicts as a result of economic devastation. Let's not even get into the ruined oceans.

The article clearly wanted to communicate the urgency and gravity of climate change, but was it effective? How do we determine effectiveness? What communication processes and practices result in positive social change?

This is not a new question. Development experts, policy makers, researchers, advocates, and communication scholars have been trying to figure out how positive sustainable social change happens and the role communication can play for the better part of the last century. This chapter asks if there are any useful intersections between development communication for social change and emerging scholarship on climate change communication. What can development stakeholders learn from the people on the frontlines of climate change? And from the evolving practices and strategies of communicating it?

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## Current Attitudes Around Climate Change

It is important to understand the cultural and social context for attitudes and beliefs around climate change before diving into the emerging literature on climate change communication. Despite large-scale scientific consensus, and apocalyptic articles in popular media like the “Uninhabitable Earth,” public attitudes and beliefs, particularly around whether or not the issue should be a priority, have fluctuated extensively. Unfortunately, the majority of current research is focused on developed countries with a notable dearth of research in developing countries (Wolf and Moser 2011; Wibeck 2013; Ming-Lee et al. 2015). Nevertheless researchers have identified compelling reasons for fluctuating attitudes despite scientific consensus. These reasons include experiences of economic insecurity, growing political polarization, media bias, personal exposure to visual images of climate change, and experience with extreme weather events, with the first two being the most significant causes of fluctuating attitudes and public concern (Brownlee et al. 2013; Weber and Stern 2011).

According to a recent Pew Research Center poll (Motel 2014), a majority of Americans believe that the earth has been getting warmer in recent decades, but rank it as a low actionable priority. It is thus important to distinguish between “awareness of” and “concern about” the issue. The poll revealed sharp partisan divides consistent with previous research with Democrats being more likely than Republicans to see it as an actionable issue. Most Americans and Congresspeople, however, still rank several other issues as greater threats than global climate change.

After evaluating and documenting significant fluctuations in over 30 years of public opinion data about global warming and the environment, Scruggs and Benegal (2012) suggest, perhaps unsurprisingly, that the decline in belief about climate change is most likely driven by economic insecurity. They argue that economic recessions lead people to demand behaviors by governments and others to increase the economy and improve the market which conflicts with their beliefs about what is needed to mitigate the negative impacts of climate change: limiting economic activity. One implication for climate change communicators is that

framing to address the issue might benefit from more acutely addressing economic concerns (IE: the promise of the renewable energy industry).

It is important to note that opinion on climate change is, for some portion of the public, increasingly becoming more stable and largely fixed by ideological and social identities, identities shaped and codified by elite cues – that is, leaders of the political and cultural identity group – in which different individuals align (Brulle et al. 2012). The fluctuations in belief and growing political divides have concerned climate change communicators, researchers, and advocates who believe that there must be a bigger mobilization of engagement in order to coordinate the responses needed to create the sustained change necessary. The historical trajectory of development communication scholarship may offer some useful lessons regarding how to mobilize and evaluate sustained engagement.

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## **Intersections Between Development Communication and Climate Change Communication**

Development communication scholarship precedes the emerging literature on climate change communication by about 10 years though there are some interesting intersections, namely, around the top-down approach to communicating messages in order to inspire behavioral change. Nora C. Quebral, the first person to coin the phrase “Development Communication” in 1971, called it “the science and art to change society in a planned way.” She since updated it to “the science and art of human communication linked to transform society from a state of poverty to one of socio-economic growth that makes for greater equity” (2005). Servaes (2009) defines it as a social process that involves the sharing of knowledge aimed at reaching a consensus for action that takes into account the interests, needs, and capacities of all concerned.

Lennie and Tacchi (2013) note that currently Communication for Development (C4D) “encompasses all forms and modes of communication, including community radio, community based information and communication technology (ICT) initiatives, processes such as community dialogue, participatory video, and digital storytelling activities, and the use of various combinations of new and traditional media.” They highlight, however, that it is about people first and foremost.

Traditionally the communication process was seen as a one-way transmission from sender to receiver. Beginning in the 1950s, early approaches assumed a one-way progression from an agricultural to an industrial society, from the pre-modern to the modern, and from the nondemocratic to the democratic. Mass media was the channel through which these “modern” ideas were transmitted, and the success of their “transmission” was measured in economic terms (Schramm 1964; Lerner 1958; Rogers 1962). Similar ideas were centered in early climate change communication: however, perhaps ironically, success in economic terms might be determined by how much people are willing to give up (relative to their consumption practices), rather than gain. Initially, in the 1980s, climate change was communicated primarily by scientists and narrowly focused on scientific findings and synthesis

reports (such as the Intergovernmental Panel on Climate Change, IPCC) and sometimes by high-level conferences or policy meetings (Moser 2010).

Following on the heels of Schramm, Lerner, and Rogers, climate change communication efforts focused on the role of mass media with the expectation that an increased amount of coverage would bring an increased awareness and thus behavioral change and, perhaps more importantly, a sense of urgency with public engagement. The scientific facts were assumed to speak for themselves with their relevance and policy significance interpreted by all audiences in similar ways. However, the reality was actually much different. Different audiences interpret the news in different ways based on their own cultural, social, and political ideologies (Nisbet 2009). To complicate matters, the US news media, perhaps in an effort to garner more views or to subscribe to a “balancing” norm, initially publicized news about climate change as something that was up for debate, giving equal weight to the scientists and the “climate deniers.” This gave the erroneous impression that there was limited expert agreement, contributing to a public with varying perceptions and levels of awareness that rose and fell with the attention cycles in the media (Moser 2010; Nisbet 2009).

This strategy of providing the public with information and assuming that it would lead to active and sustained social change – a strategy that has become known as the “information-deficit” model has also informed a majority of climate change communication campaigns outside of the mass media. Over the past three decades, countries, provinces, and supranational institutions have launched top-down climate change and energy-related communication campaigns pursuing a range of goals (education, awareness raising, behavior change) – with the exception of the United States, whose communication mobilizations have not been centrally coordinated by the government but by different organizations and advocacy groups (Wibeck 2013).

Alongside these information transfer campaigns, however, there has more recently been a move toward more participatory and dialogical approaches aimed at increasing public engagement. Such approaches have been the subject of communication research, as a growing number of recent studies illustrate how dialogic, deliberative processes can deepen understanding and empathy, change attitudes, and increase receptivity to policy alternatives (Moser 2016). This move parallels the historical trajectory of development communication. The multiplicity framework in development communication emerged in the 1980s in many ways as a response to the failures of the transmission approach. The framework emphasized plurality and dialogue along and in between all levels of society (Servaes 1999) while suggesting that there is no universal path or standard to development but rather that each culture and community must decide the best path based on a grass-roots, bottom-up approach: self-development of local communities.

This framework centered on participatory communication, based largely on Brazilian author, activist, and teacher Paulo Friere’s work (1970) which stipulated that dialogic communication was essential for conscientization – the autonomy of each individual to realize their own self-worth. A participatory approach first recognizes that the point of departure must be the community. The viewpoints of local groups must be considered before resources for projects are allocated and

distributed. Secondly, social equity and a democratic process are best fostered through a horizontal process of information exchange.

Participatory communication in theory sounds idyllic: however, the reality in practice tells a more complicated story for both the development communication field and climate change communication efforts. Waisbord (2008) notes that institutional dynamics often undercut potential contributions of participatory communication, while others argue that the language of “participation” has, in fact, been co-opted and used in the rhetoric of bureaucratic organizations that continue to operate under the top-down modernization paradigm. Another critique is that while the theory takes a cultural-specific approach, it cannot, in practice, account for the ways that different cultures structure their hierarchies of power and gender differences, since the theory advocates equality and horizontal processes of communication. Lennie and Tacchi (2013) note that a consideration of power dynamics must be prioritized in participatory efforts. “Opening up spaces for invitational participation is necessary but not enough to ensure effective participation. Supportive processes are needed because invited spaces for participation in development are often structured by those who provide them, rather than created by the people themselves. . . Invited participation in spaces created for this purpose by those in positions of power can diminish the spaces where people set their own agendas on their own terms” (p. 11).

Similar complexities with regard to participation and dialogue around climate change efforts have emerged, even as evidence suggests that participatory communication processes are more effective. For example, public participation exercises where the community is invited to deliberate on a local climate change problem or attend a workshop on global warming, while in stark contrast to top-down climate change information campaigns, have proven to generate behavioral change. “Carbon Conversations Groups” in the United Kingdom, for example, offer a supportive group experience that helps people cut their carbon footprint by connecting to group members’ values, emotions, and identities. The groups are based on a psychological understanding of how people change and offer: *space* for people to explore what climate change means for them, their families, and their aspirations; *permission* to share hopes, doubts, and anxieties; *time* to work through the conflicts between intention, social pressure, and identity; *reliable, well-researched information* and practical guidance on what will make a difference; and *support* in creating a personal plan for change (Rayner and Minns 2015). The wider communication challenge is to deploy this at a scale beyond local support groups who are already “carbon capable” (Whitmarsh 2009).

Wibeck (2013) notes that while public participation in climate science and policy implies mutual learning between lay people, decision makers and scientists in deliberating on appropriate responses, in order for these participatory exercises to be successful, people need to be able to contribute their time and ideas. When public participation events can only include a limited group of participants, there is a risk that only people with the financial and social capital will attend. Vulnerable members of the population – that is, those who live in poverty, or are otherwise marginalized will not necessarily have the capacity to participate. In countries where a large proportion of the population struggles simply to survive each day, those who do

end up participating are less likely to be representative of the general population and especially of the people who might benefit the most from policies that might emerge from such public deliberation (Wibeck 2013). Similar findings were echoed in Polk's long-term ethnographic study of a Transition Town in Amherst, Massachusetts, where it was found that the people who were able to participate in the initiative aimed at "transitioning" their community toward greater resiliency were the ones with the most resources – including time and money – to engage. Thus outreach to and actions involving the most vulnerable in the community were not necessarily prioritized (Polk 2015).

A lack of consideration of power not only risks the success of climate change initiatives, but it has also informed (as noted earlier) the very sites where climate change communication research has taken place (i.e., almost all in developed countries).

## **Challenges to Effective Climate Change Communication**

It is important to note that climate change communication presents its own series of unique challenges and obstacles to creating sustainable social change. Indeed some of the most pressing challenges include the fact that climate change is not visible for many people, especially people in positions of privilege to set policy and mobilize sustained movement; the lack of immediacy (i.e., it is difficult to sustain mobilization around preventing the earth's temperature from heating up two degrees in the future as opposed to organizing a rally against police violence); delayed or absent gratification for taking action (this is related to the former – if one cannot see the immediate fruits of one's labor, it becomes difficult to prioritize and sustain massive action); and finally the complexity and uncertainty of a problem that affects people all over the world in different ways (Moser 2010; Marquart-Pyatt et al. 2011; Weber and Stern 2011; Whitmarsh 2011).

McAdam (2016) outlines several reasons why people have not yet mobilized around climate change. His ideas provide important considerations for climate change communicators. He suggests that climate activists have failed in the United States at creating a collective identity frame for the climate movement. Because there is no clear identity or ownership of the climate change issue, sustained collective mobilization is difficult. McAdams notes, for example, that the only segment of the American public for whom climate change is highly salient is, ironically, extreme conservatives, whose views on the issue are central to their political and ideological commitments. For the rest of the population – the majority of whom acknowledge that climate change is happening – the salience of the issue is highly variable, depending on numerous factors, as noted above. Further climate change communication research might explore the processes of other advocacy groups in creating effective identity frames as one way to inspire massive sustained mobilization.

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## Communication Challenges for Scientists

Scientists, as the gatekeepers of knowledge, will always play a crucial role in communicating climate change, and they face their own set of challenges. Lupia (2013) notes that one of the biggest challenges is that people have less capacity to pay attention to scientific information than many communicators anticipate. Secondly, even if they do pay attention, people often make different choices about whom to believe based on political ideology and cultural worldviews (Akerlof et al. 2013), and as noted earlier these choices are growing increasingly sharp among partisan lines, reinforced by a bifurcated flow of conflicting information from the media and from elites on both sides of the spectrum (McCrigh and Dunlap 2011). These challenges – in addition to the lack of perceived immediacy and visibility – cause policy makers and the public to be less responsive to scientific information.

Lupia (2013) suggests that scientists might be more effective if they understood two communication-related concepts: attention and source credibility. New science information is always in competition with all other phenomena to which that person can potentially pay attention. Science communicators can benefit by obtaining information about what an audience initially believes about the new information they are conveying, since people assign meaning to new information by comparing it with what they already believe. Source credibility, the extent to which an audience perceives a communicator as someone they would benefit from believing, is key for science communicators. In order to achieve source credibility, the listener must perceive the speaker to have sufficiently common interests, and the listener must perceive the speaker to have relative expertise (Lupia 2013).

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## Characterizing the Current Climate Change Communication Field

Despite the above challenges, the field has grown considerably for both practitioners and researchers in the last decade in ways that mirror development communication. In fact, one might note a similar trajectory – including, as noted earlier, the movement in practice and research from studying top-down transmission flows to more dialogic flows, the impact of culture and values on belief and action, as well as intersections between the climate movement and other current social movements (Caniglia et al. 2015; Luers 2013; Hadden 2014).

The year 2015 brought one of the most significant climate change communication moments, when Pope Francis released his encyclical on the human-earth relationship with its particular focus on climate change (Francis 2015). A global religious figure of his stature choosing to focus on climate change brought a heightened moral immediacy to the issue – the long-term effects remain to be documented. Such an event is situated within a larger landscape of a growing field that, much like development communication, is defined largely by its interdisciplinarity and by the depth and breadth of research and practice possibilities. Moser (2016) divides the climate change communication landscape into six categories: (1) the climate itself, which has provided ample research opportunities with increased superstorms,



droughts, flooding, and acidification of the oceans, among others; (2) scientific advances, notable discoveries, and climate change assessments; (3) climate policies and actions including annual international meetings of policy-makers; (4) climate communicators and practitioners, who use the former three categories to practice their craft; (5) climate communication science as a multidisciplinary branch of academic research; and (6) important contextual and foundational factors that are relative to the site of research. This includes the social and political culture of a nation; “political destabilizations. . .heightened terrorism fears, pandemics (e.g., Ebola), or the ongoing refugee crisis in the Middle East and Europe; as well as larger economic, technological or cultural shifts and events in specific industries, nations, or regions of the world.” (Moser 2016).

Within this climate change communication landscape, several central themes emerge, themes which again mirror the turns in development communication a decade ago. For example, the role of values, beliefs, worldviews, identity, and meaning-making has become one of the most central foci of climate communication researchers, which has informed significant research on framing, messaging, and language (see more below). A second theme involves the importance of storytelling and narrative formats to convey climate change. A third theme centers communication channels and forms and explores the relationship between the media (in all its forms) and the science and policy aspects of climate change. This theme is connected to a fourth theme, familiar to most development communication scholars: how best to move audiences to action. This question has informed considerable research into human motivation and how best to communicate it. Finally, there is a growing focus in practice and research on how best to communicate climate change mitigation and adaptation as well as new research on the intersectionality of the climate movement with other social movements (Moser 2016).

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## **Moving Forward: Focus Areas for the Future of Climate Change Communication**

### **Framing as a Concept, Practice and Process**

A deeply fragmented media and political landscape demands that climate change communications continue to focus on framing. Framing – as a concept and an area of research – spans several social science disciplines. Frames are interpretive storylines that communicate why an issue might be a problem, who or what might be responsible for it, and what should be done about it (Nisbet 2009).

Framing as a theory emerges from the relationship between the media landscape and relevant cultural and social forces that shape the opinions of multiple publics and these publics’ wills to act. Climate change communication frames that seek to appeal to the general public have included appeals to morality and ethics, as featured in Al Gore’s WE campaign (short for “We can solve it”) which launched in 2008 in an attempt to unify US citizens by framing climate change as a solvable and shared moral challenge. Other effective frames include public health and economic

development. Such frames have been used to both negate and suggest policy changes as well as shape public understanding of the issues.

One example is the use of the word “dangerous” in the framing of climate change. Research suggests that public support or opposition to climate policies (e.g., treaties, regulations, taxes, subsidies) is greatly influenced by public perceptions of the risks and dangers inherent in climate change (Leiserowitz 2005). However, the word “dangerous” is defined differently depending on the stakeholder. Expert definitions will be informed by scientific efforts to identify, describe, and measure thresholds in physical vulnerability to natural ecosystems or to critical components of the current climate system. Expert definitions of dangerous can also be derived from scientific efforts to define thresholds in social vulnerability to climate change and can also include efforts to identify particular ceiling levels of atmospheric greenhouse gas concentrations or global temperatures. Lay public perceptions and interpretations of what constitutes “dangerous climate change,” however, are based on psychological, social, moral, institutional, and cultural processes, including trust, values, worldviews, and personal experiences. These perceptions are made all the more complex by climate change’s “invisibility” for many. Leiserowitz (2005) found that while experts tend to narrowly define risks using two dimensions (e.g., probabilities and severity of consequences), the general public tends to utilize a much more multidimensional and complex set of assessments. Thus the media’s role in choosing how to define and frame “danger” is directly implicated in the translation of scientific information and the way in which this information relates to the aforementioned social and psychological factors. Relatedly, it is important to note that these factors are subject to change and can be manipulated by the messenger. For example, an economic frame used by conservatives to denounce climate change mitigation policies might also be employed by environmental policy makers as a way to persuade people that the economy will be revitalized by investing in clean energy technology (Nisbet 2009).

Previous research on framing has looked at the ways in which people have responded to different terminologies to describe the changes they are seeing in the environment. The term “global warming,” for example, focuses attention on temperature *increases*, which makes it a less convincing word for climate skeptics during the winter. For example, US President Donald Trump tweeted on Dec. 28, 2017:

In the East, it could be the COLDEST New Year’s Eve on record. Perhaps we could use a little bit of that good old Global Warming that our Country, but not other countries, was going to pay TRILLIONS OF DOLLARS to protect against. Bundle up!

Such idiotic comments are not new. The Drudge Report ran a headline in 2004, “Gore to warn of ‘global warming’ on New York City’s coldest day in decades!.” The implication, however, with regard to the fact that the same rhetoric is being used and distributed to the mass public suggests that climate change communication scholars and practitioners still have much work to do. Perhaps the term “global warming” will always remain too confusing for some.

Research suggests that the term “climate change,” in contrast, may recruit more general associations of temperature *changes*, which can more easily accommodate

cold temperatures and record snowfalls. Whitmarsh (2009) found that “global warming” evokes stronger connotations of human causation, whereas “climate change” evokes stronger connotations of natural causation. This implication is important to consider, especially in American politics, where conservatives tend to be more skeptical about the phenomenon and particularly its human origins (McCright and Dunlap 2011).

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## **Framing Considerations for Different Stakeholders**

### **Individual Attitudes, Beliefs, and Personal Experiences**

A recent line of scholarship focuses on the effects of personal experience on climate change beliefs, focusing on the relationship between long- and short-term exposure to temperature anomalies and extreme weather events, such as flooding, droughts, and hurricanes (Akerlof et al. 2013; Hamilton 2011; Pidgeon 2012).

Akerlof et al. (2013) found that perceived personal experience of global warming appears to heighten people’s perception of the risks, likely through some combination of direct experience, vicarious experience (e.g., news media stories), and social construction. They suggest this could be an indication that a small percentage of the general public are able to tap into aspects of direct experience that influence their local perceptions of climate change risk, apart from their political and cultural identities. These findings are particularly meaningful given the influence of increasing political polarization.

For those individuals for whom climate change remains largely invisible, communication scholars and practitioners must think of how to make the impacts resonate on a personal level. First communicators must understand that any information they are offering about an issue must compete with the immediate challenges involved with supporting one’s family. Most individuals (even scientists) cannot and will never fully grasp and hold this amount of scientific complexity and uncertainty in their minds, much less be able to process it (Moser 2010). Even if it were to be accepted, mitigation and adaptation responses offer another slew of complexities to understand and engage in. Climate change communication scholars and practitioners must craft communication that takes not only the complexities into account but the lack of personal resources to accommodate them as well.

Given these complexities, Sander van der Linden (2014) suggests that successful climate change campaigns must meet three criteria: (1) interventions should design integrative communication messages that appeal to cognitive, experiential, *as well as* normative dimensions of human behavior; (2) the context and relevance of climate change needs to be made explicit; and (3) specific behaviors should be targeted, paying close attention to the psychological determinants of the behaviors that need to be changed.

## The Influence of a Fragmented Media Landscape

In framing climate change, the media play many crucial roles. Brulle et al. (2012) conducted a study that included coverage of climate change in *The New York Times*, major broadcast television nightly news coverage, and weekly magazine coverage. They found perhaps not surprisingly, the greater the quantity of media coverage, the greater the level of public concern. The media reflects and shapes worldviews and values that inform public opinion and the public's understanding of options to mitigate climate change, shifts attention to specific areas the public should focus on and care about, suggests linkages between events, and proposes which actors should be seen as responsible and accountable.

The issue now is that while an increase in and fragmentation of media – in both the possibilities of consumption (via social media, mainstream media, blogs, computer games, etc.) and platform distribution (via computers, mobile app technology, printed paper, television, radio) – brings more possibilities for education and awareness, people can also choose to read information that is already aligned with and supports their political and cultural worldviews and beliefs. One implication of this fragmentation is the magnification of existing social divisions and the spread of misinformation (Moser 2010). Another potential complication is that while attention to climate change at news outlets such as *The New York Times* and *Washington Post* reaches record highs, this coverage may actually reach a proportionally smaller audience now than it would have in the past (Nisbet 2009).

Moser (2016) articulates the paradox of the current moment in the climate change communication media landscape well. “The tension between climate change as a scientifically, politically, socioeconomically and culturally complex phenomenon often requiring expert communication and interpretation on the one hand and a media landscape that is in the hands of the variably educated, motivated and ideologically leaning many on the other, however, could not be starker.”

It is important to note amidst this tension that recent studies have shown that media focusing on climate change *MUST* not only reach lay audiences, but must be effective at persuading political elites. This is because, as noted earlier, science-based information is actually limited in shaping public concern, while other, more political communications appear to be more important to the public. Climate change communicators would do well to focus on getting the attention of political and social elites, not just the general public (Brulle et al. 2012).

The same might be said for engaging and sustaining participation in social movements around climate change. Some theorists and advocates argue that we must do more than mobilize massive engagement and get the attention of elites; we must also hold elites accountable for the ways in which they are culpable for the grievances caused by climate change. This next section explores how climate change communicators might be more effective at doing this.

## **Climate Advocacy and Social Movements Must Adhere to Frames that Hold Perpetrators Accountable, Including Those Within the Movement**

The United Nations Framework Convention on Climate Change (UNFCCC), with its myriad meetings and activities from the Rio Earth Summit in 1992 to Kyoto in 1997, Copenhagen in 2010, and Paris in 2015, has inspired and helped to sustain multinational mobilization around climate change. In 2010, Brulle (2014) identified 467 unique organizations that comprised the US climate change movement alone, and the numbers are growing.

At the core of all social change processes lie cultural and political disputes to maintain or redefine a field of practice involving a number of actors, including industry organizations and their trade associations, professional bodies, government actors, social movements, and countermovements. The most basic way that social movements change the social landscape is by framing grievances in ways that resonate with members of civil society (Caniglia et al. 2015). Social movements focus members of civil society on particular dimensions of social problems of concern and provide clear definitions of those problems, along with arguments regarding who is at fault and what options exist for solving their grievances (Caniglia et al. 2015). To create and sustain a social movement on climate change, however, Brown (2016) argues that it is not enough for advocates to counter the false scientific and economic claims of climate change policy opponents; they must constantly seek to educate about the causes of the injustices that climate change is causing if they seek to build and sustain a social movement.

But accountability must extend to those within the climate and environmental movements as well and the particular framing choices they made, the consequences of which have contributed to partisan and cultural divides. Historically, large environmental organizations, which were largely funded by white members and run by men, developed fear-based public messaging around controlling consumption (“Reduce, reuse, recycle!”) and “saving the planet.” Framing the issue in these terms has worked to center certain cultural values, perhaps at the expense of alienating others. According to Corner et al. (2014), one unintended result is that public engagement with climate change has become polarized along values-based lines: individuals and groups that tend to strongly endorse certain values have come to view climate change as a serious problem requiring immediate action, while those who more strongly endorse different values have come to view action on climate change as an (implicit) attack on or deliberate ignoring of their own values. Recently, the environmental justice movement, which aims to center marginalized voices that have largely been on the outside of mainstream environmental movements, has made meaningful intersections with climate change movements. Such intersectionality accompanied with an awareness of and sensitivity to different cultural and social beliefs, values, and worldviews must continue if the movement is going to grow and sustain itself. Climate change communication experts can play a key role in facilitating those connections.

## Measuring the Effectiveness of Climate Change Communication

Currently, there is a dearth of sustained research that has measured the effectiveness of climate change communication. This is partially due to the complexity of the word “effectiveness” and the trouble with developing generalizable frameworks to measure it – a difficulty quite familiar to the development communication field. Most concerted communication campaigns on climate change have not been guided or carefully assessed by follow-up evaluation studies to discern whether the goals set initially had been achieved and, if not, why. Historically, the success of a communication campaign has been measured by the numbers of printed pamphlets delivered, media hits, or website visits. Some follow-up studies have assessed changes in attitudes before and after specific events focused on climate change, such as viewing Al Gore’s film *An Inconvenient Truth*, attending or watching the *Live Earth Concerts* in 2007, or viewing the action thriller *The Day After Tomorrow* (Moser 2010).

Researchers might fill a gap in evaluation by working with organizations to develop ways to document and evaluate their communication and engagement practices and their subsequent short- and long-term impacts. Kahan (2015) argues that much like the measurement problem of quantum physics, the measurement problem of the science of science communication involves the intrusion of multiple competing forces including education, democratic politics, and other cultural and social domains that force individuals to engage information from one of these perspectives only. Thus, the people whose orienting influence evaluators need to observe are not necessarily scientists but rather the thought leaders within specific communities. “They are the people in their everyday lives whose guiding example ordinary members of the public use to figure out what evidence of scientific belief they should credit and which they should dismiss. We can through these interactions measure *what they* [the public] *know* or *measure who they are*, but we cannot do both at once.”

Kahan’s insights are crucial for communication scholars seeking to evaluate the effectiveness of their campaigns. One can measure how much somebody knows about climate change in terms of the information they have, but one must also figure out a way to measure what they will *DO* with the information, and this is based on their understanding of who they are – their identity-protective selves which research suggests will be prioritized as a way of preserving their particular “group status.” Greater scientific knowledge can actually increase one’s capacity for and facility with explaining away the evidence relating to their groups’ positions.

Climate change communication researchers interested in developing effective ways to evaluate climate campaign efforts might be interested in borrowing frameworks from development communication scholars. Recently, communication scholars have tried to address the social, cultural, institutional, and organizational complexities of measuring the success of their efforts by developing more holistic frameworks for evaluating projects – that is, shifting the focus from measurement-oriented approaches, which have historically been used as a way to be accountable to large donors, to one grounded in a systems approach and complexity theory. This

approach emphasizes long-term engagement in all evaluation stages of a project. While project constraints don't always make long-term engagement possible, by grounding an assessment framework in a wider lens, it becomes possible for the assessment itself to be seen as an ongoing learning experience and less about managing a set of specific deliverables within a specific timeframe. Lennie and Tacchi (2013) argue that social change needs to be seen as dynamic, nonlinear, and unpredictable. They developed seven interrelated framework components for evaluation. They suggest the framework must be participatory (for trust and mutual learning), holistic (must take into account interrelationships and networks), complex (outcomes unknowable in advance), critical (focus on gender and other differences), realistic, learning-based, and emergent. Such an approach shifts the focus away from proving impacts to improving initiatives, using evaluation to support the development of innovation, and redirecting the focus to internal and community accountability. Climate change campaign efforts – especially those that center a dialogic approach – would be well suited to this framework.

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## **Conclusion: Lessons Learned and Looking Ahead**

This chapter has attempted to provide a brief overview of the landscape of climate change communication, including the ways in which it mirrors the historical trajectory of development communication as well as mapping out the field's own unique and particular challenges. Several important themes have emerged which may be important for both development and climate change scholars.

First unlike development communication, more climate change communication research is needed in developing countries. Although there are some studies that have been done outside of the United States and Europe, the majority continue to center the thoughts and behaviors of the Western world. Ming-Lee et al. (2015) note that academics in developed countries tend to assume widespread awareness of climate change. However, these awareness and risk perception are unevenly distributed around the world. While high levels of awareness (over 90%) were reported in developed countries, the majority of populations in developing countries from Africa to the Middle East and Asia – including more than 65% of respondents in countries such as Egypt, Bangladesh, Nigeria, and India – have never heard of climate change (Ming-Lee et al. 2015).

## **Distribution of Scientific Information Is Not Enough for Sustained Behavior Change**

Research from multiple disciplines suggests that promulgation and distribution of scientific information to the public on climate change has a minimal effect. Information-based science advocacy has had only a minor effect on public concern, while political mobilization by elites and advocacy groups has been critical in influencing climate change concern (Scruggs and Benegal 2012). Thus communication



scholars and practitioners *MUST* address the complexities of socially embedded uses of scientific knowledge by multiple stakeholders. The knowledge and mechanisms available (or not) to translate understanding and concern into practice must be the central focus of relevant communication efforts.

Some of these complexities are most evident in the political sphere, where climate change beliefs have become deeply partisan, particularly in the United States where recent research suggests that education and self-reported understanding of global warming have little effect on the views of climate change held by Republicans and conservatives. Thus “bombarding citizens with more information doesn’t diminish polarization but instead aggravates it by amplifying the association between competing identities and competing positions on climate change.” (Kahan 2015). Rather than focusing on how to get out more information, researchers would do well to focus on the circumstances that make recognizing valid scientific information hostile to the identities of certain populations.

### **Focus on Positive Solutions, Local Stories**

In terms of communication that motivates and inspires action around climate change, research suggests that to enhance engagement, positive feedback on individual actions with a focus on solutions as well as locally and personally relevant framings is most effective. This includes increasing visibility of the issue that will connect locally to individuals as well as making climate-related issues more concrete as opposed to only focusing on the negative consequences (Whitmarsh 2011; Wibeck 2013). A supportive narrative might also evoke “climate protection” as a source of a socially desirable identity which might signal to a population the need for behavior and policy change (Moser 2010).

Kahan et al. (2012) note that communicators should endeavor to create a deliberative climate in which accepting the best available science does not threaten any group’s values. They suggest that effective strategies can include use of culturally diverse communicators, whose affinity with different communities enhances their credibility, and information-framing techniques that invest policy solutions in ways that will resonate with diverse groups.

### **Interdisciplinary Sharing and Dialogic Communication Between All Stakeholders Must Be Central**

Two-way information flows do not just mean dialogues in community; it means that opportunities must be created for all stakeholders to share information from multiple perspectives, fields, and disciplines. Information must flow from and be shared between community members, political elites, media, scientists, advocates, and researchers.

It is not yet clear at this moment just how much is shared between climate communication practitioners and climate communication scholars, but more



institutionalized opportunities for sharing findings, data, insights, and experiences would benefit all stakeholders involved in communicating the issue. Moser (2016) notes that relatively few communication researchers actively interact with those who do the majority of climate communication. Academics typically are not rewarded for such outreach; it is time-consuming; researchers are not trained to do so effectively, and given the often polarized atmosphere around climate change, many shy away from it (Moser 2016). However, if researchers want climate communication to be as effective and impactful as it could be, their work must connect more effectively with those who do most of the talking – climate scientists, policy makers, advocates in all sectors of society, journalists, editors, and public intellectuals.

### **Communication Efforts and Their Evaluation Need to Be Long-Term and Sustained**

The effects of communication on the general public regarding climate change are short-lived. Brulle et al. (2012) found that a high level of public concern was seen only during a period of both high levels of media coverage and active statements about the issue from political elites. It rapidly declined when these two factors declined. Thus, if public concern is to be sustained, there must be continuous and sustained public communications efforts to maintain public support for climate change action, especially in the face of opposing messaging campaigns.

Despite increased global temperatures, record-breaking storms, flooding, and droughts around the world, there are still majorities of people in many countries for whom the word “climate change” is not familiar and/or who do not have the power to play an active role in developing the adaptation and mitigation policies that will best serve them. Despite predictions from scientists regarding climate change’s serious and often devastating impacts, which include massive human migrations, poisoned oceans, a range of extinctions, food shortages, and increased conflict, many people – particularly in developed countries – continue to rank climate change as a low priority. Until there is a sustained reconciliation between climate change and the willingness of stakeholders, particularly those in power, to prioritize necessary action, the need for effective climate change communication will remain urgent and critical.

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