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# Global Warming in Local Discourses

How Communities around the World  
Make Sense of Climate Change





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# 1. We are Climate Change

## Climate Debates Between Transnational and Local Discourses

*Michael Brüggemann and Simone Rödder*

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Local discourses around the world draw on multiple resources to make sense of a “travelling idea” such as climate change, including direct experiences of extreme weather, mediated reports, educational NGO activities, and pre-existing values and belief systems. There is no simple link between scientific literacy, climate-change awareness, and a sustainable lifestyle, but complex entanglements of transnational and local discourses and of scientific and other (religious, moral etc.) ways of making sense of climate change. As the case studies in this volume show, this entanglement of ways of sense-making results in both localizations of transnational discourses and the climatization of local discourses: aspects of the travelling idea of climate change are well-received, integrated, transformed, or rejected. Our comparison reveals a major factor that shapes the local appropriation of the concept of anthropogenic climate change: the fit of prior local interpretations, norms and practices with travelling ideas influences whether they are likely to be embraced or rejected.

Silla [...] means the weather. Silla means also the human intelligence. So the weather and human intelligence are connected in our mythology, [...] the bigger intelligence that means the universe. So the universe, the weather of the globe, our weather [...] but also the human intelligence are connected.

*Interview with Inuit representative on a United Nations climate summit, as quoted in Roosvall and Tegelberg (2018: 69).*

The work of literary scholars, anthropologists, cultural historians, and critical theorists over the past several decades has yielded abundant evidence that “nature” is not nearly so natural as it seems. Instead, it is a profoundly human construction. This is not to say that the nonhuman world is somehow unreal or a mere figment of our imaginations—far from it. But the way we describe and understand that world is so entangled with our own values and assumptions that the two can never be fully separated. What we mean when we use the word “nature” says as much about ourselves as about the things we label with that word.

*Cronon (1995: 25), as quoted in Jasanoff (2010: 245).*

Echoing the first quote, it is a key proposition of the social sciences that representing nature entails representing humans (e.g. Jasanoff 2010; Jasanoff 2004; Luckmann 1970; Berger and Luckmann 1966). Anthropogenic global warming is a case in point: our physical environment, including the climate and the landscape, shapes our social realities; our social realities, in turn, influence our perceptions of our physical surroundings. These perceptions shape our practices and ways of living—which again affect the climate system.

“We are the climate”, states ethnographer de Wit in Chapter 5, Tanzania. The phrase is echoed in different studies assembled in this book, including Maasailand in northern Tanzania, the capital city of Greenland, Nuuk, and the Philippine Island of Palawan.

There is, thus, a threefold connection between society and climate change. We are climate change, as our interpretations of climate change reflect who we are. We are climate change, as our lifestyle is based on the massive emission of greenhouse gases. Thirdly, and this is a major finding from the empirical studies presented in this book: the notion of a complex entanglement between society and nature, climate, and climate change is shared among many communities around the globe.

Given that climate change exists and will proceed regardless of what we think about it, why is it important to study how local communities make sense of climate change? As has long been argued in sociology (Luhmann 1989), the physical and biogeochemical processes described by terms such as *climate* and *climate change* have to be distinguished from the patterns of interpretation related to these processes that find resonance in society. In this sense, the concept of climate change is a social construction (Stehr and von Storch 1995). Interpretations of climate change, such as those that stress individual and collective efficacy (the belief that “we can make a difference”), may motivate people to change their lifestyles and, more importantly, mobilize political action, while feelings of fear and shock may overwhelm, paralyze actions or lead to risk denial (Feldman and Hart 2015; O’Neill and Nicholson-Cole 2009). Responsibility for action may be attributed to individuals or to political and economic decision-makers. Different causes of action may be advocated. All of these factors will ultimately influence how societies react to climate change. This is why it is not only of academic interest, but also of practical importance to study local discourses about climate change.

This book investigates sense-making as a process of social construction. Sociologists Berger and Luckmann (1966) have famously argued that society is composed of social constructions of reality in the myriad of day-to-day interactions in which we define, perform, and negotiate individual and collective selves. Social representations theory from social psychology likewise posits that there are patterns of meaning embedded in media content as well as in direct communication processes that shape social interactions (Höijer 2011, see also Chapter 2, Greenland). Combining this meaning-based approach with the idea of social differentiation, human geographer Hulme has described the scientific concept of climate change as “an idea that now travels well beyond its origins in the natural sciences. And as this idea meets new cultures on its travels and encounters the worlds of politics, economics, popular culture, commerce and religion—often through the interposing role of the media—climate change takes on new meanings and serves new purposes” (Hulme 2009: xxvi; see also Chapter 3, Philippines).

Important factors that influence both the individual and collective sense-making of climate change include the encounter of (1) transnational

and local discourses and (2) scientific and other ways of sense-making. The two dimensions are empirically not distinct, yet it makes sense to distinguish them analytically and discuss them one by one.

**(1) Transnational and local discourses:** The climate debate is shaped by strong transnational (cutting across national borders) actors and institutions. The transnational character of climate research has been institutionalized in the set-up of and reports by the Intergovernmental Panel on Climate Change (IPCC), and is communicated based on a consensus policy (Hoppe and Rödder 2019). Another driver of transnational elements of climate debates is the United Nations Framework Convention on Climate Change and its annual climate summits (Conferences of the Parties, COPs). COPs have been found to be the most salient events in media coverage of climate change (Schäfer, Ivanova, and Schmidt 2013); they have become political media events reaching broad audiences (Brüggemann et al. 2017; Wessler et al. 2016).

Two observatories of media coverage of climate change at the Universities of Colorado (Media and Climate Change Observatory, MeCCO) and Hamburg (Online Media Monitor on Climate Change, OMM) confirm the relevance of COPs and transnational science events in drawing attention to climate change. They also show that climate change was heavily debated in the years 2007 to 2009, when the Nobel Peace Prize was awarded to the IPCC and Al Gore, and when the climate summit in Copenhagen attracted high hopes for transnational climate governance. The failure of Copenhagen led to a decade of public neglect of the issue, reflected in waning media attention to the topic (Boykoff et al. 2018; Brüggemann et al. 2018). The media debate on climate change has re-emerged in 2018 and 2019 after summers of heat and drought and the transnational climate strikes inspired by teenage activist Greta Thunberg (Mahl et al. 2020). The media debate is thus driven by transnational events and actors, including transnational NGO networks, as well as strategies of denial and downplaying the issue, fueled by the interests of carbon-dioxide-emitting industries (Oreskes 2017; Dunlap and McCright 2015).

While strong transnational discourses may lead us to expect similarities in local discourses about climate change, there are also good reasons to expect diversity. Local discourses are embedded in national political contexts that clearly also matter for the debate on climate change, as different content analyses have shown. National government

positions tend to set the frames in national media outlets (Wessler et al. 2016; Grundmann and Scott 2014; Grundmann 2007). Ethnographic research has shown that local communities do not just mirror global climate discourses but develop their own interpretations of nature and/or climate change (Stensrud and Eriksen 2019; Baer and Singer 2014; Crate and Nuttall 2009).

**(2) Scientific and other ways of sense-making:** The global governance approach of the climate regime resonates well with the prevailing scientific framing of the climate problem as global temperature rise (Aykut, Foyer, and Morena 2017; Aykut and Dahan 2015). Yet, scientific debates clash with the logics of other social worlds (Grundmann and Rödder 2019). The emergence of the concept of anthropogenic climate change has sparked entangled discourses in science, politics and journalistic media (Weingart, Engels, and Pansegrau 2000). National politics, as mentioned above, shapes national climate debates, as do the logics of journalism and political leanings of news outlets (Brüggemann and Engesser 2017; Boykoff 2011). Political ideologies overshadow scientific sense-making of climate change. Denying and downplaying the risks of anthropogenic climate change has become a defining feature of being Republican in the United States (Hoffman 2015; Dunlap and McCright 2008).

The impersonal and universal abstractions of science do not resonate well with local discourses. Jasanoff argues that the scientific-political representation of the climate problem as a global phenomenon is at odds with the sensations and memories through which local communities make sense of climatic change (2010: 237). The scientific meaning of climate change, as a decades-long increase in average global temperature, is not something that individuals can experience: "Global warming is not founded on everyday experience, has no immediate effects, and is not readily observable" (Ungar 1992: 489). Exposure to extreme weather or changes in vegetation or seasons can, of course, be experienced, yet it is an act of interpretation to link them to climate change (see also Rudiak-Gould 2013 on the controversy of whether climate change is visible). It has been shown that political concern about climate change has benefited from weather anomalies since the 1970s: "With a little help from Mother Nature [...] climate change research reached the agenda of top US policy-makers" in 1971-75 (Hart and Victor 1993: 665, as quoted in Grundmann and Stehr 2012: 120). Yet, extended phases of extreme

summer heat (e.g., in 1988, 2012, and 2018/19) have only partly found resonance as “social scares” (Ungar 2014, 1992).

Communities do not necessarily draw a link between experiences of extreme weather and global warming, and indeed, connecting everyday experiences of weather phenomena to climate change has long been regarded as a misunderstanding of the scientific concept. Yet, as Jasanoff (2010) points out, this is an obvious way to help individuals make sense of the concept. Moving on from the misunderstanding-paradigm, a research field has recently emerged in climate sciences that explicitly aims to assess the connection between extreme weather phenomena and climate change, the science of event attribution (see Chapter 7, Attribution Science). To turn the link between extreme weather events and climate change into a new focus of climate research may be interpreted as a scientific response to the mismatch of scales between climate science and every-day experiences in both time and space.

Following Jasanoff, we assume that “the impersonal, apolitical and universal imaginary of climate change projected by science comes into conflict with the subjective, situated and normative imaginations of human actors engaging with nature” (2010: 233). This book addresses these tensions based on in-depth studies of how communities around the world make sense of climate change: How do local discourses relate to global discourses of science and politics? The volume’s case studies extend beyond the well-researched Anglo-Saxon sphere and include both industrialized nations as well as perspectives from the Global South. Each case explores three dimensions of climate-change discourse.

The first dimension is *patterns of communication* related to climate change. Information about climate change often comes to us in mediated form, and the type of media influences the message that is conveyed (see, e.g., traditional media theories going back as far as McLuhan 1964). Therefore, each chapter analyzes who is communicating climate change messages—and using which media, including mass and social media, as well as interpersonal communications.

Second, we are interested in *patterns of interpretation* about climate change that emerge from the different flows of communication. Local recipients may engage in oppositional readings of media coverage (Hall et al. 1978): their sense-making might depart from the frames provided by elite sources that populate media coverage. Therefore, each chapter probes

whether climate change is viewed in the study location as anthropogenic or not, and as a severe problem or not. Additional questions include: Who is held responsible for mitigating and/or adapting to climate change? Do people self-identify as victims of, or as contributors to, anthropogenic climate change? What solutions do they advocate?

The third dimension is the *entanglement of meanings* originating at the local or transnational level including how the scientific and other framings of climate change speak to each other.

We suggest grasping entanglements of meanings with the concepts of *localization of transnational climate discourses* and *climatization of local discourses*, respectively. The first term invokes the precedence of local patterns of interpreting concepts from afar. It has been used to describe processes or strategies that counter trends of homogenization through globalization and emphasizes the relevance of local factors of influence (see, e.g., Escobar 2001). The second term, climatization, stresses changes in local discourses induced by transnational climate-change discourses. It was developed in the context of studies on transnational climate policy making (Aykut, Foyer, and Morena 2017). Foyer and colleagues diagnose a “climatization” of the policy world whereby participants in various discourses present issues that were formerly unrelated to the climate problem through a “climatic lens”, leading to the treatment of a variety of issues according to the dominant logics of the global climate regime (Foyer, Aykut, and Morena 2017).

Beyond this framework, the individual chapters draw on a variety of analytical perspectives. Each presents findings from an in-depth study (mostly PhD theses) conducted within different disciplinary traditions, including anthropology with its focus on detailed description (Geertz 1973, see Chapter 3, Philippines, and Chapter 5, Tanzania) and media and journalism studies, from both interpretive (see Chapter 2, Greenland, and Chapter 6, Bangladesh) and more standardized approaches (see Chapter 4, Germany). All share a solid grounding in fieldwork, and all prioritize local discourse, asking how communities around the world re-contextualize and reframe transnational discourses on climate change. As expected, all case studies demonstrate that local communities relate their everyday experiences of changing seasons and extreme weather events to climate change. Notably, the attribution of weather events to climate change has come full circle and refocused

attention in climate science on event attribution. We therefore asked a climate scientist to introduce the field of event attribution science by presenting the current state of knowledge on how climate change affects extreme weather events and seasonal phenomena in the world regions discussed in this volume (see Chapter 7, Attribution Science). This final chapter can itself be read as a piece of scientific discourse—written with a broad audience in mind—that speaks to the other chapters’ explorations of local communities’ sense-making.

In the following, we summarize each study, explain its approach and case-specific findings and eventually discuss some common patterns that emerge from the case studies.

## Climate Change as a Vehicle for Hopes and Fears in Greenland

While the Arctic regularly serves as a poster child for dangerous anthropogenic climate-change impacts in media reports, its citizen’s perspectives on both the impacts and their media representation have so far received much less attention (but see Nilsson and Christensen 2019; Nuttall 2009). Chapter 2, written by communication scholar Freja Eriksen, helps fill this gap by studying how Greenlanders make sense of climate-change impacts through both media exposure and personal experiences. Her analysis is based on social representations theory and on five focus group interviews involving fifteen inhabitants of Nuuk, the capital of Greenland.

Eriksen finds that while iconic images of melting icebergs portray Arctic citizens as climate change victims, her interviewees do not self-identify as victims. The local discourses she describes diversify the global imaginary of Greenland “melting away”, even including the positive image of a future capital “Costa del Nuuk”. The notion of “Costa del Nuuk” is an example of naming and anchoring the unclear future of a warming Greenland with well-known concepts such as summer holidays on the Spanish Mediterranean coast. These humorous replies confirm previous findings by Nuttall (2009), whereby political aspirations for self-governance and independence are linked to a warming climate that opens up chances for future development (while Denmark, the former colonizer, might become flooded).

Eriksen's findings also echo Nuttall's (2009) argument that in Greenland, the climate is widely understood to be permanently changing and intrinsically unstable. Similar to perceptions among the Maasai (see Chapter 5, Tanzania), unreliable seasons and a changing climate are thus not believed to be extraordinary, new, or necessarily manmade.

Notably, for the inhabitants of Greenland, who we might expect to have direct experiences with climate change, the topic appears heavily mediated by news coverage. As one high school student puts it: "We live in Greenland but we don't see icebergs break off every day". While the interviewees criticize too stereotypical media descriptions of climate-change impacts, media coverage remains a major reference point. And while some interviewees oppose the dominant journalistic story of harmful climate change with Greenland as one of the most heavily affected countries, Eriksen points out that the alternative narrative put forward—politically and economically beneficial climate change—may also be taken from the media.

The chapter highlights that both media and local discourses cannot be treated as homogeneous entities. Eriksen found that an individual's professional background influenced whether they stressed the potential economic benefits or environmental risks of climate change. Also, groups of older people were more likely to doubt that humans have triggered current climate change and to believe that the media exaggerate climate change. Younger interviewees asserted that the media underestimate the true dangers of man-made global warming. Yet both age groups shared a distrust and criticism of media coverage, albeit for different reasons. Some inhabitants called for more local Greenlandic perspectives on climate change in the media.

The chapter clearly illustrates both the clash between transnational and local discourses and the conflict between the scientific view and self-assessments of climate-change impacts. While science warns that the Arctic is more heavily affected by climate change and is warming faster than most other world regions, and transnational media stereotypes propagate iconic images of polar bears and melting ice, local discourses emphasize that the climate has always been changing, that warmer temperatures might actually be better for Greenland and that Greenlanders have been able to adapt to these changes throughout history.

## Recontextualizing a Travelling Idea: Climate Change on the Philippine Island of Palawan

Chapter 3, written by social and cultural anthropologist Thomas Friedrich, studies the case of the Philippine island of Palawan to shed light on how climate change is perceived on an island where environmental protection is popular. Employing multi-method ethnography, the chapter explores how the idea of climate change is locally reframed based on personal experiences, and embedded in pre-existing ways of knowing nature and cultural practices including an already strong environmentalism.

Conceptually, the chapter draws on Hulme's interpretation of climate change as a "travelling idea" (2009), and argues that the notion of climate change has evolved predominantly in a top-down direction, from global IPCC knowledge via networks of media and politics to local people with diverse cultural backgrounds and epistemologies who try to make sense of it. Friedrich combines this notion with a Science and Technology Studies-informed distinction between knowledge and meaning, reiterating Jasanoff's point that scientific climate knowledge arises from impersonal observation whereas cultural meanings emerge from embedded experience in specific environmental, social and cultural contexts (Jasanoff 2010).

Because the island of Palawan has been exposed to severe environmental destruction, the government has pursued a vigorous environmental discourse and a determined environmental policy since the 1990s, which has also contributed to a consensual view of the perception of climate change.

The chapter examines educational theatre performances to demonstrate how the production and dissemination of a local notion of climate change takes place. The communicator of knowledge about climate change that the ethnographer examined in this case is a local NGO. In all their plays, natural disasters were linked to morally wrong environmental behavior such as cutting mangroves for charcoal production, an illegal but widespread practice on the island. The author thus argues that activities like the theatre "contribute to maintaining the popularity of tree planting as a means of environmental and climate protection". Recommending already widespread activities helps to secure the popularity of environmental protection measures, as

opposed to discourses that brand popular practices, such as eating meat or driving cars, as environmentally harmful.

As for the question of entanglements between local and global discourses, the chapter shows that there is no linear relationship between climate knowledge and environmentally friendly behavior. On Palawan, climate change is perceived as one natural hazard among many, and “the discourse on climate change may have served more as post-hoc justification than original motivation for past and present behavior”. It is thus neither knowledge of, nor belief in, anthropogenic climate change that makes a behavioral difference. Rather, the global discourse reinforces pre-existing beliefs, values, and practices. On Palawan, “it strengthens people’s traditionally strong environmentalism and validates their strong rejection of, for example, cutting trees or burning garbage”. In such a situation, the climate may be protected ‘accidentally’ while communities pursue other goals.

## Climate Change Comes Closer for Locals in Northern Germany

In Chapter 4, a media and communication studies author team (Imke Hoppe, Fenja De Silva-Schmidt, Michael Brüggemann, and Dorothee Arlt) reports findings from a broader research project at Hamburg University that explored audience reception of the COP 21 climate summit in Paris. The chapter compares how the Paris summit has been perceived and interpreted in an urban (Hamburg) and a rural setting (Otterndorf), both located in Northern Germany. The small town of Otterndorf is situated at the end of the Elbe estuary on the North coast, and the metropolis of Hamburg is located upstream along the Elbe River. The authors explore how space, both as a physical and a social concept, influences interpretations of climate change, with a focus on the role media reception plays in the process. The chapter draws on data from focus group discussions and media diaries, and uses an online panel survey from the wider project to contextualize the qualitative analysis presented in the chapter.

The results show that both media use and interpretations of climate change are fairly similar in both settings. Respondents in both settings criticized local media coverage of the summit. Apparently,

local newspapers failed to explain the complex matter of transnational climate governance and make it locally relevant. Locals were aware of the summit but claimed that the media did not explain what the international negotiations were about.

Spatial differences mattered as residents of Hamburg and Otterndorf differed in the extent to which they were personally concerned about potential climate-change impacts. Even though sea level rise is a tangible consequence of climate change for residents of Hamburg as well, they hold strong beliefs that it will not affect them personally. Historical floods (devastating parts of Hamburg in 1962) are no longer viewed as a threat. People in Otterndorf, with the rising tides of the North Sea behind the dikes, felt more personally concerned about climate change and worried that coastal protection was insufficient. Local discourses found in Hamburg thus provide evidence of the belief that Hamburg (e.g., through the harbor) contributes to climate change, but is not really affected. The local discourse in Otterndorf, taking place among the inhabitants and apparently being neglected by local media, was more about climate change as a threat to some of their villages.

An unexpected finding was the role of local roots and connection: long-term inhabitants drew stronger links between climate change, climate policy making, and their local community. The study thus concludes that the longer an individual lives in a place and the more connected he or she feels to it, the more relevant spatial factors become for her or his experience of climate change. While the science of anthropogenic climate change is widely accepted, the global policy discourse remains remote to local communities in Germany.

## Resistance to the Idea of Anthropogenic Climate Change among the Maasai

Chapter 5 travels south into Maasailand. It draws on fourteen months of ethnographic work conducted by anthropologist Sara de Wit for a PhD dissertation at the University of Cologne. She studies the ways in which climate-change discourse is translated, communicated and received in a rural village in Northern Tanzania, exploring how villagers who have no experience with Western life and whose culture is shaped by religion translate the story of climate change.

Conceptually, the chapter draws on cultural theories of risk perception (e.g., Douglas 1992) that emphasize that our models of nature and risk are not value-neutral scientific descriptions but are influenced by moral and political considerations. The chapter reconstructs the translations of the transnational discourse about climate change driven by the mass media (represented by the local radio station), the (Christian) church and NGOs. It finds that the ways in which climate science is translated do not sit well with the Maasai's religion and culture. The absence of awareness of and talk about climate change is not primarily rooted in a lack of knowledge, argues de Wit, but constitutes an "attempt to remain faithful to one's own set of norms, values, beliefs".

The first reason for the Maasai to oppose the scientific narrative about climate change is that it is perceived as an attack on their religion. In the local language, the same word (*Eng'ai*) denotes God, sky (or heaven), and rain. Drought and rain are the domain of God. Now NGOs—in an educational movie described in the chapter—are telling the Maasai that it is climate change that brings about drought and that humans cause climate change. Hence, it is of no use to pray for rain. Scientists are viewed as secular prophets propagating their apocalyptic tale. Also, discussing the future meets resistance among the Maasai, who "refuted any attempt to probe future climate scenarios or ideas of the future in any sense. Questions related to futurology were always cast away with laughter, followed by 'we cannot know', or 'only God knows'".

The second reason why the message of anthropogenic climate change meets opposition is that the local community views changing weather and unreliable seasons as normal conditions of life. The idea of stability as the "natural" state of nature seems strange (see also Chapter 2, Greenland). A third reason is that the Maasai currently have to deal with a deep cultural change following a switch from a nomadic to a semi-nomadic lifestyle: "Perhaps the weather has changed, but we have changed, too". The deterioration of climatic conditions is furthermore interpreted as a consequence of the decline of culture and morals.

De Wit points out that in this context it is "not fruitful to disentangle climatic and societal changes"—a marked contrast to the scientific attribution approach as outlined in Chapter 7, which focuses on isolating the contribution of climate change to extreme weather events. She

concludes that the story of climate change is not doomed to be rejected locally, if it respects the “inclusive ontology in which society, morals and nature are interwoven—a way of living that ceases to make sense when purged of *Eng’ai*”.

## Climate Change and Other Troubles along Bangladesh’s Coastline

In Chapter 6, Bangladesh-born communication scholar Shameem Mahmud focuses on the country’s coastal region to explore how communities at the forefront of climate-change risks make sense of the concept. Thus, the chapter deals with yet another group that is often dubbed “climate victims” in Western discourses.

The chapter studies the community’s major information sources on climate change and how it understands climate change in the context of constant exposure to regional geo-hazards such as tropical cyclones, floods, salinity in the water and soil, storms, and coastal erosion. The conceptual part of the chapter is based on the climate change communication and risk perception literature. Methodologically, the study draws mainly on interviews with thirty-eight citizens of a coastal district in Bangladesh, located close to the world’s largest mangrove forest. Almost half of the participants were illiterate.

The study finds that interviewees obtained climate change information from a number of sources, including mass media (radio and television), NGO advocacy programmes, and local opinion leaders. This acquired knowledge focuses on topics such as salinization and sea level rise as local impacts of climate change. It is interesting to note that, just as in Greenland (see Chapter 2, Greenland), the local communities in this climate-change-affected country still learn about the concept through the media. An interesting aspect of this chapter is the role of NGOs in framing the climate issue for the coastal community. There are 250 active NGOs in the region, and attributions to climate change are often induced by NGO officials who conduct awareness programmes for farmers and fishermen. “I have heard this might be because of climate change” was a standard narrative among community members in response to the interview questions.

Mahmud identifies two major patterns of sense-making of climate change within the community. First, a “regional geo-hazard pattern”, which contextualizes risks from climate change with well-known local geo-hazards, namely “climate change as increased and unprecedented storms”, “climate change as drowning in the sea”, and “climate change means increased salinity”. The second pattern is “weather and seasonal variance”. It describes how the interviewees attribute their personal experiences of changes in local weather and seasons to climate change. The communities’ direct exposure to extreme weather events and experiences of seasonal change and other vagaries of the weather clearly influence how they make sense of mediated climate change information.

In their explanation of phenomena, such as increased salinity and rising tidal surges, the interviewees stated that the phenomena were “not new”, but attributed the increase of the problem to the hitherto abstract concept of climate change—a phenomenon that social representations theory (see Chapter 2, Greenland, and Chapter 3, Philippines) describes as “anchoring” a new concept in familiar ones. The interviewees were also aware of local causes other than climate change: e.g. shrimp aquaculture as a source of increased salinization. Rather than attributing any ecological problem to the global issue of climate change, and in contrast to some of what they have heard from NGOs, the community members claimed agency, and responsibility: “We should not always blame others for the problem”.

The study reveals complex entanglements between local and global discourses, including the question of responsibility for a problem like salinization. The chapter highlights the importance of analyzing NGOs’ communication strategies, tools and content, as well as their role in creating awareness and motivating behavioral changes among rural communities. In conclusion, local “place identity” formed through experiences of regional geo-hazards, in combination with media information and NGO communication, make climate change a salient risk in this coastal community of Bangladesh.

## Attributing Extreme Weather Events to Climate Change: The Perspective of Science

In Chapter 7, physicist and climate modeler Friederike Otto describes the kinds of changes that are already being experienced locally and those that we are likely to see in the future. As one of the pioneering researchers in the emerging field of event attribution, she shows how research has recently advanced in exploring the link between extreme weather events and climate change. The chapter also exemplifies how science produces knowledge that is subsequently considered as authoritative in society. The process starts with a “landmark paper” that proposes a new methodology, which is followed by peer scrutiny and results in published claims of relevant knowledge.

The chapter translates the question of links between climate change and extreme weather into the scientific language of changing probabilities: climate change has increased the likelihood of particular types of events by a certain percentage. It also emphasizes that attributable changes in these probabilities are associated with a number of uncertainties, and that the robustness of various studies varies strongly depending on the types of events and geographic region investigated.

Nonetheless, there are some basic facts that climate scientists now treat as known for certain, including the fact that the current global warming trend is anthropogenic. This warming causes rising sea levels and increases the risk of some extreme weather events. This link is more evident for heat waves and large-scale rainfall, while at this time droughts and other events can only be linked to climate change in specific regions and seasons.

While Otto clearly stresses advances in this field, she also highlights limitations such as the complexity of weather phenomena like droughts and a lack of data, especially in the Global South. There are also natural variabilities in the climate system that influence how often extreme events occur. Furthermore, anthropogenic climate change interferes with other human impacts such as changing land use patterns and how communities manage rivers and water systems (see Chapter 6, Bangladesh). Otto explains that the damage caused by extreme events

is understood as an outcome not only of the event itself, but local vulnerability and exposure are major risk factors in addition to the meteorological hazards. The methodological rationale of the scientific approach is to disentangle these factors in order to accurately attribute given effects to particular causes. This approach to disentangling different causes stands in marked contrast to how different factors (anthropogenic, natural) and considerations (scientific, religious, moral, and economic) are entangled in local debates about climate change.

This chapter draws on data gathered from around the world and provides a perspective that is shaped by the logic of scientific research. Although it holds insights on specific regions, its perspective is not that of a local community but of a distinct professional way of sense-making. Still, it illustrates how the media and public debates influence climate science, and thus provides evidence of what has been conceptualized as the medialization of science (Rödder et al. 2012; Weingart 1998). Individual perceptions and journalistic claims about links between extreme weather events and climate change have long preceded climate scientists' ability to draw this link. Public claims about possible links may have provided the impetus for the emergence of the science of event attribution—which has only very recently matured to make claims about the role of anthropogenic climate change in specific weather events.

## Comparing Local Discourses

Local discourses on climate change are, in many ways, unique. Describing and understanding the specifics and details of each case is an endeavor that goes beyond the scope of book chapters and deserves full-length dissertations (De Wit 2017; Friedrich 2017; Mahmud 2016). Having summarized the cases with at least some of their specific results, we now briefly discuss them comparatively, looking at similarities and differences. We follow our framework of *patterns of communication*, *patterns of interpretation*, and *patterns of entanglement of transnational and local discourses*.

## Patterns of Communication: How Local Communities Use and Evaluate Sources of Information on Climate Change

Local communities typically distinguish between “us” (voices from my village, family, friends) and “them/others” (voices from afar, such as journalistic media, NGOs, and scientists) in the use and assessment of sources on climate change. Some sources, like local media outlets or local NGOs, may be situated in between these two categories, depending on how strongly they are rooted locally. “Other” sources are used to learn about the world beyond the local community (“I have seen it on TV”, “It was on the news”), yet these sources are not trusted in the same way as those socially close to home. When asked whom they would rather believe about climate change, students from Greenland responded their local “elders” or “my grandmother” (see Chapter 2, Greenland). In more traditional societies, being socially close seems to overlap with spatial proximity, since families and communities tend to be located in the same village or in a limited area. In highly mediatized Western societies, particularly in urban contexts, being spatially and socially close (in the sense of belonging to the same community) may or may not overlap. Yet, the distinction between familiar sources that are part of the community and voices from afar remains relevant in both settings.

Media coverage, in particular, is criticized, mainly for *not* being able to understand local concerns related to climate change. Being a *detached* observer (and therefore keeping distance) is, in fact, a core self-understanding of journalism (Hanitzsch 2011; Deuze 2005). Climate change as a travelling idea that comes from afar is typically mediated by journalistic media, as well as by the NGOs’ educational and activist programmes. The localization of the transnational discourse may sometimes fail, and remain remote and irrelevant to local publics.

Explicit criticism of news reporting was salient in our Western case studies where interviewees claimed that the media (including local media) provided a stereotypical image of them as helpless victims of climate change (Greenland), or failed to make the issue of global warming locally relevant (Northern Germany). In line with the well-researched phenomenon of a “hostile media” perception (Gunther and Schmitt 2004), some respondents assume that the journalistic media

serve some kind of hidden agenda (such as protecting the profits of ocean liners in Hamburg, see Chapter 4, Germany). We also see plural (negative) evaluations of the coverage: while some inhabitants of Nuuk criticized the media for being too alarmist, others opposed them for neglecting the risks associated with climate change (see Chapter 2, Greenland).

Several chapters highlight the role of NGOs in bringing ideas of climate change to local communities. As the chapters describe, it is mainly through educational programmes and events that local or western NGOs try to create climate-change awareness and motivate behavioral change among local communities. The chapters about cases from the Global South do not relate any instances of explicit criticism of either media content or NGO activities.

Differences between northern and southern societies occur, possibly, due to the higher degree of mediatization in the northern societies, where all areas of life are shaped by digital media use (see, e.g., Couldry and Hepp 2016). Thus, the students from Greenland emphasize that they do not see melting icebergs in everyday life, but know about them from media coverage.

The direct information activities of NGOs were not mentioned in our western case studies. It may be—and this needs to be further studied—that the NGO's local information activities in the Global South serve as a functional equivalent to mediated communication in western societies.

## Patterns of Interpretation: How Local Communities Make Sense of Climate Change

Many informants in the communities under study share the feeling of being affected by climate change. This is expressed as a change from a more stable and better past to an unpredictable present and a potentially threatening future. Most explicitly articulated among the Maasai, but also elsewhere, these changes are attributed to a moral decline in society. A complex nature-culture connection via morality and religion is a commonplace finding in the anthropological literature, typically idealizing the past in order to criticize the present (Schneegg 2019).

While the local communities analyzed in the case studies feel affected by climate change, they do *not* see themselves as victims. Rather, they

claim agency and feel competent to fight climate change, for example by praying or planting trees. And they feel able to adapt. This finding is in line with other studies which have found that local communities self-identify as “designers of the environment”, and is in stark contrast with the transnational discourse that casts them as “helpless victims of climate change processes” (Jurt et al. 2015). Yet, there is little denial of the anthropogenic nature of climate change (some Maasai and some respondents in Greenland are exceptions that we will return to below), and there is an overall willingness to address the problem.

Another cross-cutting finding is that local discourses are not homogeneous: they are divided by age group, social position of the interviewee, and degree of rootedness in the local community. Older people seem to be more inclined to resist new narratives such as climate change, and we find evidence of this in Greenland as well as among the Maasai. Studies have shown this for other countries, even though there are national differences in the relative importance of each of the factors influencing perceptions of climate change (Poortinga et al. 2019; Capstick et al. 2014).

## Entanglement of Local and Transnational Discourses

The chapters report instances of both the localization of transnational discourses and the climatization of local discourses. Transnational climate discourses travel to communities some of which do not read or write and its meanings are transformed along the way, resulting in vastly diverging localizations around the world. The chapters on Greenland and Germany emphasize that local subgroups differ in how they make sense of climate change. The Greenland case study shows how younger audiences are more connected to transnational discourses through journalistic and social media. The German case study emphasizes differences between a village and a city, as well as between inhabitants with deeper or shallower roots in the local community. The localization of discourses in this case affects inhabitants with deeper roots in the community to a greater extent.

At the same time, we see instances of “climatized” local practices. Chapter 3 finds that the global climate discourse fosters the already popular practice of collective tree planting and thus “recycles” this

practice “in climatic terms” (Foyer and Kervran 2017). The Maasai, however, mostly reject the idea of anthropogenic climate change, which conflicts with God’s responsibility for rain, the weather, and the climate. This is notably similar to the views of some fundamentalist Christian communities in the United States (Shao 2017; Smith and Leiserowitz 2013). In Bangladesh and the Philippines, by contrast, the idea of climate change falls on culturally responsive grounds. Whether a scientific idea like climate change is embraced is thus linked to the respective community’s prior beliefs about nature, humankind and the universe. Comparing the Maasai, the cases in Bangladesh and the Philippines hint at an important driver of the climatization of discourses: the *fit of prior local interpretations, norms and practices with travelling ideas* influences whether they are likely to be embraced or rejected.

We find an overall primacy of local concerns, which may be explained by drawing an analogy of local communities’ sense-making with individual psychological mechanisms. Confirmation bias and avoidance of cognitive dissonance explain how individuals preserve their world views; similar processes may also apply to how local communities preserve their own discourses. New information is selectively used to confirm pre-existing cultural ideas, such as tree planting in the Philippines or urging people not to cut down the mangrove forest in Bangladesh.

All chapters confirm noticeable differences between the epistemologies employed by science and those of local communities, drawing, e.g., on religion and morality. The major feature of how people draw on different resources to make sense of climate change is indeed relating the idea of climate change from global scientific and policy discourses to personal or collective experiences of weather events or seasonal changes. It is interesting to note that climate science, with the field of event attribution, has adapted to this common-sense logic of relating the abstract (climate change) to the concrete experience (extreme weather event). Departing from emphasizing the difference between weather and climate, scientists now also focus on trying to explain how weather events and climate change relate (see Chapter 7, Attribution Science).

When discussing the changes they witness, local communities often express a sense of “shared responsibility” between carbon dioxide emissions from afar and ecologically deleterious local practices, such

as shrimp farming (in Bangladesh), cutting trees (in the Philippines), or personal consumption patterns (in Germany). People on the coast of Bangladesh do not forget the local sources of some of their ecological problems (salinization), and do not attribute these problems solely to climate change. For this reason, the tendency of some NGOs to attribute a given local problem to global climate change at times clashes with the local communities' attributions of local problem causes. The attribution of a local problem to climate change and, often, the promotion of technical fixes as prime solutions, calls into question the communities' own ways of knowing, as well as claiming agency and attributing responsibilities. Thus, while climate protest movements may have the best of intentions, attributing concrete local problems solely to climate change depoliticizes practices on the local level and may help local authorities deviate attention and deflect responsibility away from their own failures and mismanagement.

Many ideas and practices in local discourses, like planting trees to avoid climate change, are not fundamentally at odds with scientific scenarios of mitigating climate change, but an important aspect is often lost in translation: the scale of the issue. Politicians and scientists talk about global challenges, while individuals integrate their conclusions from this global discourse into their local day-to-day activities. While some interviewees in the Philippines and Bangladesh assume that the problem can be tackled if they plant some trees, some current climate scenarios would require transforming areas the size of entire countries into industrial tree-growing plantations. There is again a mismatch between the scale of scientific forecasts on the infrastructure changes necessary to combat climate change and the actions people can take within the constraints of their everyday lives.

Finally, we find that individuals' reception of the idea of climate change does not depend on their education. The majority of respondents from Bangladesh and the Philippines may be less educated and may have more pressing concerns than climate change, but they do not doubt its existence. Partly, they engage in climate protection 'accidentally', by continuing the cultural practice of tree planting that preceded their awareness of climate change (see Chapter 3, Philippines). These cases once more confirm the finding that there is no simple link between

scientific literacy, climate-change awareness, and a sustainable lifestyle (Grémillet 2008).

## Outlook

Local discourses around the world draw on different resources to make sense of climate change, including mediated reports, experiences of extreme weather, and pre-existing values and belief systems. This results in both localizations of transnational debates and the climatization of local discourses and practices.

One may think about this research not only for the purpose of understanding local discourses and their entanglement with scientific and political climate debates, but it may inspire communication practice, as well. When communicating climate change, one should be ready to accept that people have more urgent concerns to deal with in their everyday lives—but sometimes climate change may be related to these more obtrusive concerns. Identifying links between the global problem and local concerns is useful for developing strategies for engaging people with climate change. Planting trees has been practiced for good ecological reasons before worrying about climate change, yet it also benefits climate protection. When trying to solve ecological problems on the coast of Bangladesh, an academic discussion of whether salinization is due to climate change or due to shrimp farming is beside the point, as *both* of these (and probably other) factors contribute to the problem. In local discourses, as De Wit's chapter shows, seemingly contradicting approaches to interpreting the world co-exist. Schnegg (2019), in a study on how pastoralists in Namibia explain rain patterns as opposed to how meteorologists explain the same phenomenon, finds that individuals do not have to rigorously decide between the two competing knowledge systems; they can relate to both, depending on their respective social context. They can "switch between ways of knowing, and thus between worlds". Whether people effectively do so is also likely to depend on whether one knowledge system (whether it is science or religion, for instance) claims precedence in all domains of life. This insight has consequences for how climate change should *not* be communicated: as a modern substitute for religious beliefs. This might be more easily achieved by a local communicator who can complement, and possibly,

integrate, a scientific perspective with the belief systems (religious or not) of a local community.

We encourage our readers to draw their own conclusions on how to communicate climate change at home, wherever that may be. The following case studies show that knowledge about the locally salient discourses around nature and climate change is a precondition for understanding how to communicate climate change. They also, hopefully, inspire a more interdisciplinary and transdisciplinary dialogue on how local communities make sense of climate change.

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