FOCUS ARTICLE

Politics of attributing extreme events and disasters to climate change

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Abstract

Climate change certainly shapes weather events. However, describing climate and weather as the cause of disasters can be misleading, since disasters are caused by pre-existing fragilities and inequalities on the ground. Analytic frames that attribute disaster to climate can divert attention from these place-based vulnerabilities and their socio-political causes. Thus, while politicians may want to blame crises on climate change, members of the public may prefer to hold government accountable for inadequate investments in flood or drought prevention and precarious living conditions. To be both strategic and moral, framing choices must therefore be sensitive to context-dependent political meanings and particularities, and to how the values implicit within analytic frames about the causes of disasters shape policy responses. Such sensitivity requires multicausal analysis of weather-linked disasters to illuminate a broader range of means to reduce the damages associated with climate change and weather extremes. Through examples from around the world, and especially Brazil, we discuss how and why climate-centric disaster framing can erase from view—and, thus, from policy agendas—the very socio-economic and political factors that most centrally cause vulnerability and suffering in weather extremes and disasters. We also offer a theoretical discussion of why attribution is not neutral. Analytic frameworks always embed choices about factors that matter, and thus are inherently normative and consequential for understandings of responsibility and action.

This article is categorized under:
   Social Status of Climate Change Knowledge > Climate Science and Decision Making

Highlight
1. Attributing crises only to climate is inadequate from a mechanical, moral, and strategic policy points of view.

KEYWORDS
blaming politics, causal attribution, climate change, disaster, experience, extreme events, media, vulnerability

1 | INTRODUCTION: ATTRIBUTING—AND CONFLATING—WEATHER EXTREMES AND ENSUING CRISES

Powerful science leaders hope that identification of the role of climate change in extreme weather events will "spur more immediate action" to mitigate climate change and to avert the damages associated with such events (McNutt, 2019). Scientists thus have an understandable "tremendous desire" (Trenberth et al., 2015, p. 725) to use "attribution science" to show the extent to which particular weather events, such as heat waves, storms, droughts, and floods, are caused by climate change (Trenberth et al., 2015, p. 725). Encouraged by improved scientific capacity to discern the role of climate change in individual extreme events, the next step often taken to inform journalists and the public is to also attribute *damages* that follow these climate events to the events and their anthropogenic components. The specious assumption is that better, more-precise attribution of extreme events to climate change also can be used to attribute damages that follow to climate change, as pointed out by Hulme et al. (2011).

We review literature and evidence that illustrates why climate-centric framings of disasters can be misleading and problematic, even from a policy point of view. We urge caution to avoid conflation of the causes of extreme weather events and associated crises. Even where science can attribute such events to human emissions of greenhouse gases with some rigor, the damages that follow are centrally a function of vulnerabilities on the ground. Our narrative review thus argues for multi-causal analysis of weather-linked disasters, as such analysis illuminates a broader range of means to reduce the damages associated with climate change and extreme weather. To be strategic, framing choices must be sensitive to context-dependent political meanings and particularities, and to the values implicit within analytic frames about the causes of disasters and how they shape policy responses. Through examples from around the world, and especially Brazil, we show how the climate-centric disaster framing can contradict the experiences of those who suffer disasters because it erases from view—and, thus, from policy agendas—the very socio-economic and political factors that most centrally cause their vulnerability and suffering. In a final section, we offer a theoretical discussion of why attribution is not neutral, as analytic frameworks always embed choices about factors that matter, and thus are inherently normative and consequential for understandings of responsibility and action. At the level of policy, the tension between climate-centric framings of disasters and attributions that foreground political factors, not least poverty and socio-economic inequality, is a function of the current climate regime's focus on greenhouse gas reductions (climate mitigation) over the reduction of deeper, social causes of both the pollution and the vulnerability.

2 | PRESSURES IN FAVOR OF CLIMATE-CENTRIC DISASTER FRAMING

The desire to persuade the public of the dangers of climate change via attributions of climate events pressures scientists and the media alike to attribute extreme climate events (and associated crises) to climate change. Dedicated to comprehensively monitor, analyze, and correct climate skepticism and related misinformation circulating in U.S. media and society, the progressive research and information center Media Matters for America regularly scolds U.S. media outlets for failing to mention that climate change is driving the conditions that create this "new normal" of frequent crises—as, for example, in the form of destructive wildfires (Robbins, 2015). Similarly, leading climatology communications advisors associated with the World Meteorological Organization (WMO) invoke examples from around the world to criticize media outlets for "far too often" failing to seize on "clear opportunity" to call attention to the climate as cause (Hassol et al., 2016). They coach experts to begin communications about such events by clearly defining climate change as cause, "[r]ather than starting with caveats, uncertainties, and what we cannot say," as scientists often do (ibid.).

This climate-centric attribution communications strategy is further backed by a large body of literature that explicitly understands extreme weather events and related crises as valuable opportunities to raise public attention and drive discussion about climate change (e.g., see Albright & Crow, 2019; Davidson et al., 2019, among others reviewed in Lahsen et al., 2020). Thus, both scientific and popular discourses can end up framing disasters that follow extreme weather as if they were result of stressors "from the sky," rather than outcomes of pre-existing vulnerabilities on the ground (Foote, 2016; Friedman, 2016; Janković & Schultz, 2017; Lustgarten, 2020; Rigaud et al., 2018). These attributions divert attention from other important—and treatable causes. Such "climate reductionism" (Hulme, 2011)—the attribution of crises to climate alone—also has implications for social and political understandings of potential responses, and for responsibility (Ribot, 2019).

Decision makers interviewed in a study of U.S. stakeholder perceptions of scientific attributions of California's recent drought were, without exception, doubtful that the scientific attributions of extreme events to climate change

would improve policy decisions, at least at the level of adaptation planning (Osaka & Bellamy, 2020, p. 10). Neverthe-less, journalists interviewed as part of the same study expressed increasing inclination to attribute instances of extreme events to climate change in their reporting in recent years, responding to attribution science and to increased accep-tance of this framing. Some journalists reported covering attribution science in response to perceived "pressure" from green groups or from the general public who were "asking the question" about the connection between climate change and events like the drought to highlight the climate factor (Osaka & Bellamy, 2020, pp. 6–7). Mindful of the importance of proper attribution, the study's authors conclude that if extreme event attribution is to be used as a tool for public communication, further research is needed into the effects of pressures and framing choices on publics' climate percep-tions and beliefs (Osaka & Bellamy, 2020, p. 10).

3 | MULTIPLE CAUSES OF CRISIS

It is well established that disasters are caused by many factors, even when weather plays a role (Blaikie et al., 1994; Davis, 2002; Drèze & Sen, 1989; O'Brien et al., 2007; Ribot, 2014; Sen, 1982; Watts & Bohle, 1993). Similarly, it is well established that climate change is not a primary reason that migrants leave their homes, whether in Central America, the Sahel, Syria, or elsewhere (Boas, 2015; Mayer et al., 2013; Ribot et al., 2020). So, despite extreme weather, these out-comes cannot be attributed to weather alone—if at all.

Security on the ground—conditions and policies in place—mediate damages that follow climate events. Further, these conditions have causes, which must be understood if we are to improve prevention of crises. Thus, the effects of these anthropogenic elements of climate remain contingent on conditions on the ground and the chains of causality that produce them (Blaikie, 1985). As an example, the complex causes of dangerous migration across the Sahara are illustrated by Figure 1, which shows many of causal chains that lead to what has been wrongly called a "climate migra-tion" (Ribot et al., 2020). Climate events and trends are, however, inseparable from the many other interacting causes of departure.

People understand that the damages they sustain are due to their pre-existing vulnerabilities. Indeed, there is no cri-sis without vulnerability (see Wisner et al., 2004). An extreme event may cause no damage in a well-prepared commu-nity. However, a *vulnerable community* may have damages that scale, or even multiply, with the force of the hazard. Vulnerability plays an empirical causal role in the losses and damages. A vulnerable community may attribute the dam-ages to their vulnerabilities even if the triggering weather event carries an evident climate change signature. Affected populations rightly perceive cause within their local conditions (Ribot et al., 2020).

It is one thing to link weather events such as heat waves, droughts, storms, and floods to anthropogenic climate change. It is a separate analytical step to attribute the associated crisis, losses, and damages, to these climate events. The two kinds of attribution are often linked by the assumption that better, more precise attribution of extreme events to climate change can be commutatively attributed to damages that follow (Hulme et al., 2011). Regardless of the
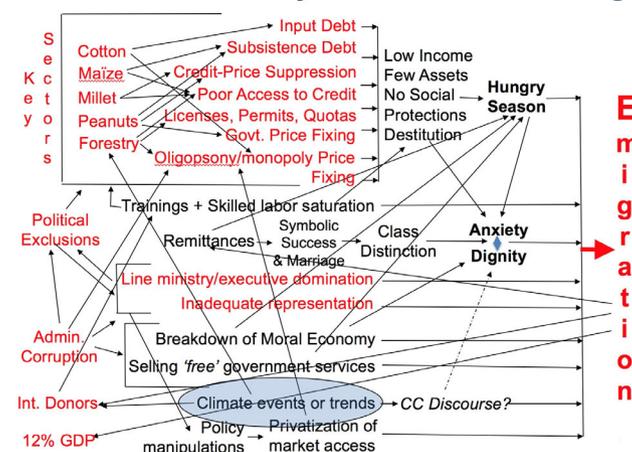

FIGURE 1 Putting climate in place among causes of migration from Senegal (Ribot et al., 2020)

magnitude of a climate event or the degree to which it is anthropogenic, however, the damages that follow depend on conditions in place (Sherbinin, 2020). Vulnerabilities on the ground must be analyzed and explained before attributions of damage can be made (Blaikie et al., 1994; Sen, 1982; Watts, 1983; Wisner et al., 2004). The role of weather can never be separated from pre-existing precarities (Ribot, 2014).

Failing to capture the place-based social causes of observed or projected damage, the climate-centric narrative is not likely to resonate with lived realities. It may ring especially false to those who live displacement or who know about socio-economic marginalization and absent or weakly enforced social and legal protections (Ribot et al., 2020). Subject to violence and oppression and exploitation, few Honduran and other Latin American migrants are traveling north merely to escape climate change (Semple, 2019; see also Lustgarten, 2020; Rigaud et al., 2018). In 1000 household surveys and 100 migrant interviews, almost no Sahelian crossing the Sahara toward Europe mentions that they are fleeing drought. Rather, they explain their plight in terms of low prices for their crops, inadequate access to markets, and the lack of social services (Ribot et al., 2020). Similarly, people who fled an extremely violent Syria also do not think they were pushed by climate change (Fröhlich, 2016; Selby et al., 2017). In such cases, people are not likely to feel climate change is an important factor—for it is much less important than the precarity (a la Bourdieu 1997) that they must contend with day to day. Thus, attribution to climate or climate change may read false to those affected when they view their precarity as a result of their local and broader political–economic situation. It is, of course, good scientific practice to provide the most accurate causal attribution of climate events—identifying as far as possible their anthropogenic component. Yet the role, meaning, and effect of this information are contingent on local politics that shape the conditions of security and vulnerability that the climate event finds in place.

To the extent that these framings are intended to draw attention to anthropogenic climate change to prevent future crises, it is ironic that they can divert attention from deeper social and political–economic causes of suffering, including the problematic conditions of violence and exploitation that fundamentally strain and diminish the very human lives that most analysts hope to protect.

4 | DISASTERS AND RESPONSIBILITY ATTRIBUTIONS: THE POLITICS OF CLIMATE-CENTRIC FRAMINGS IN BRAZIL

Socio-economic and political conditions turn extreme weather events into disasters (IPCC, 2012, 2014; Ribot, 2014; Sen, 1982; Watts & Bohle, 1993). For those in the Global South who live in precarious situations, such conditions, or associated vulnerabilities, are starkly visible. They have also been revealed in Northern cases (see Somers, 2008, on Katrina). Attribution of crisis only to a climate event is therefore inadequate as a mechanical explanation (Hulme et al., 2011), but also from a moral and strategic policy point of view. Attributing disaster to human-induced or human-augmented climate events reduces the anthropogenic cause to far away greenhouse gas emissions, and this occludes the role of local poverty, precarious housing and the myriad other social and political–economic conditions that result from inequities, politics, and poor decision making (Castree et al., 2014). Moreover, these two levels are not sufficiently joined and addressed through current policy mechanisms; at both national and international levels, there is an avoidance of deep-cutting analysis and interventions into the systemic causes of pollution and inertia (Dimitrov, 2020; Harris, 2021; Park et al., 2008). Insufficient follow-through on early pledges from developed countries to fund climate adaptation under the United Nations Framework Convention on Climate Change (Hulme et al., 2011) offers limited opportunity to address poverty and other structural conditions that undermine adaptation and resilience (L. Friedman, 2021); addressing both remains centrally dependent on national and local funds and decision-making (Council of Foreign Relations, 2013). Traditional international development institutions do not fill the gaps (Lahsen et al., 2020, p. 226).

Evidence shows that Brazilians are aware of the difficulty of simultaneously attributing disasters to climate change and to more local and socio-economic and political causes. Lahsen et al.'s (2020) study of Brazilian scientists, journalists, and civic leaders' discourses around two flooding and landslide disasters which occurred in 2008 and 2011, respectively, shows that even climate-concerned Brazilian environmental leaders systematically avoid adopting the climate frame for recurring weather-linked disasters, and that they sometimes even actively contest that frame. They show acute awareness of the political opportunity costs of attributing such recurring disasters to climate change, because it plays down the role of imprudent decision making by national and local decision makers. In the wake of the 2011 rain-induced flooding and mudslides in the mountains of the state of Rio de Janeiro, for instance—one of Brazil's most costly and tragic rain-induced disasters in recent decades—Brazilian climate scientists pushed back against climate-

centric framings. Their headline-disseminated message asserted unequivocally that "Warming did not Cause [the] Tragedy" (Lahsen et al., 2020, p. 219). As they rightly noted, events like these have been occurring for decades, and yet national mapping and early warning systems were persistently left sub-par. Vulnerabilities on the ground set people up for crisis; inadequately prepared for, the disasters caused by the flooding and landslides were expected events, even if their intensity was unprecedented. The Brazilian scientists called for urgent disaster prevention policies, including disaster mapping, warning systems, re-urbanization, relocation of houses, and helping poor people to secure housing in less disaster-prone areas (Folha de São Paulo, 2011). A climate-centric framing was not compatible with these urgent policy goals (Lahsen et al., 2020).

Later scientific attribution studies (Otto et al., 2015) support these Brazilians' disinclination to frame the two disasters as functions of climate change. However, the considerations were primarily political. As another indication, the associated actors and national media criticized Brazilian decision makers who attributed the disaster to climate change, describing this as efforts to shirk responsibility for societal vulnerabilities caused by their poor decision making. For example, after the tragic 2008 flooding and landslide event in the same Southern state of Santa Catarina, national and international experts refuted then President "Lula" da Silva singular framing of the disaster as "certainly" and "intimately" linked to climate change and, as such, caused by "many developed countries that are not assuming proper responsibility" in policy negotiations under international climate treaties (Zero Hora, 2011). Noting that extreme flooding events are a long-standing problem in the region independently of anthropogenic climate change, they instead attributed the tragic disaster to unwise development decisions and inaction despite science-based recommendations for measures to reduce societal vulnerability (Correio do Brasil, 2011). A local environmental engineer denounced the climate-centric framing of the disaster as a "deliberate attempt to naturalize the catastrophe, to eliminate governmental responsibility" (ibid.). Experts emphatically noted that the most important adaptive response went unheeded: poverty reduction and proper government control of land occupation in areas at risk for land slides and flooding.

Climate-centric framings of disasters can usefully call attention to the primary responsibility of Northern countries for causing climate change, but at the cost of displacing blame and responsibility from more local decision makers who could have reduced societal vulnerability in the face of extreme weather events, whatever the role of climate change in them. Here, as in many other places around the world, societal vulnerability in the face of such events has roots in investment practices *and* in a long history of colonial and post-colonial exploitation (Ribot, 2014, p. 673; see also Farmer et al., 2004; Franke & Chasin, 1980). For local elites, however, it is politically more comfortable and convenient to blame global climate change than it is to trace crises to histories of underdevelopment (Rodney, 1973) and exploitative international systems (Davis, 2002, p. 11014), which (like climate change attributions) lead responsibility attributions back to the over-developed counties (Ribot, 2014). To the extent that climate narratives have led to policies to guard against climate extremes, efforts have targeted things such as water retention or pumping, rather than policies that might support local security via agricultural prices, access to markets and credit, or social services (Brottem & Brooks, 2018; Ribot et al., 2020; Tschakert, 2007).

Climate-centric attributions of recent flooding events have similarly been rejected in other parts of Brazil, also on the grounds of being overly convenient for national decision makers. Although recognizing that flooding events happen in the city of São Paulo "every year more frequently, with greater intensity and greater geographic distribution," a geologist protested: "We will not believe that global warming and urban waste are causing flooding." Instead, he unequivocally blamed policymakers' poor decision-making, stressing that concrete constructions and absence of investment bearing on land-use and drainage systems, among other types of sound planning, have left the cities without drainage (Santos, 2013; see Colette, 2019, for a similar case in Argentina). The persistent reality of lacking disaster preparedness in Brazil, as elsewhere, despite many years of domestic and international climate policy, illustrates the tenuous value of the climate frame as stimulant of improved mitigation or adaptation in many places (Lahsen et al., 2020), and might make disaster preparedness for its own sake a more strategic framing (Lahsen et al., 2020).

These policy implications are unrelated to the science of climate change attribution—which may indeed be accurate. Attribution of disasters to both climate and to more local expressions and causes of vulnerability may be objectively correct in many instances. Popular communication tends toward simplification, however, as scientific nuances and qualifications can undermine clarity, sow confusion among publics, and fail to promote desired action paths (Hassol et al., 2016). Recognition of this also seems to inform climate-centric disaster framing (Lahsen et al., 2020). Against simplification, others advocate for a "cosmopolitan moment" in the public life of science (Raman & Pearce, 2020), hoping for "opportunity to forge a public culture comfortable with the epistemic diversity and ambiguity inherent to climate change, and yet a culture that can also reason together in the public good" (ibid., p. 1).

But there are important obstacles to easy reconciliation of climate-centric disaster framing with vulnerability reduction, as we have suggested, including the long-standing tendency for developing countries to stress Northern, rich countries' primary responsibility for causing and, thus, morally, for also addressing responsibility. As noted, this prevalent discourse, supported by climate-centric framings of disasters, serves to hide developing countries' decision makers' co-responsibility. That is very apparent in Brazil, whose diplomats have led developing countries' emphasis on Northern primary responsibility in the climate regime (Viola & Franchini, 2017). This framing is difficult for Brazilians to challenge, since they tend to agree with the premise of differential responsibility, even if they desire stronger climate action (Lahsen et al., 2020), and that might contribute to their inclination toward alternative disaster framings. Governments are known to manage blame strategically, to avoid public awareness and pressure in response to their decisions against substantial policy on climate change (Howlett, 2017, p. 625). Finally *is* reason to challenge the pressures to always attribute crises to the weather or to climate change, and the underpinning assumption that doing so always will bring optimal policy outcomes.

Who, then, is to decide the frame that Brazilians should adopt? Any objective judgment on that would require a reasoned, multiple-perspective-informed evidence analysis. Sometimes frames other than climate as cause might better serve public concerns and, even, achieve the hoped for "climate action." For example, although it does not come under the heading of climate policy, a strong National Forest Code in Brazil—if enforced—is a form of climate action to the extent that it preserves vegetation that is a carbon sink, including in strategic places where it can reduce the threat of floods and landslides (Silva, 2012). Here human wellbeing (via ecological sustainability) is central—and policy is aimed first at security. While climate change-related policies may also be worthy and have positive effect, forestry policy may be much more effective and perhaps more feasible, for reasons that Lahsen et al. (2020) discuss. Forest protection is certainly more within the purview of Brazil's government compared to tangible reduction of global climate change. Moreover, Brazilians have multiple more-immediate concerns. While they worry about climate change more than most other populations in the world (Leiserowitz, 2007; Lewis et al., 2019), they worry much more about deforestation: in 2012, 64% ranked it as the most important environmental problem for the country and the world, against 10% who chose to rank global climate change first (Brasil, 2012). Moreover, they attach great cultural pride and value in their biodiversity-rich, abundant natural environment (Brasil, 2012). Stressing climate change may be important, but for purposes of immediate security and popular preferences it is far from primary.

The forestry example also shows that emphasizing climate change is not necessarily the best—or the only—means of stimulating climate-relevant action, whether in the form of mitigation or adaptation. As noted, relatively little institutional and financial support for climate adaptation and resilience is found nationally in Brazil and internationally under the United Nations Framework Convention on Climate Change, and traditional international development institutions also offer inadequate funding for adaptation (Lahsen et al., 2020, p. 226). In Brazil, "official climate policies do not necessarily translate into support for climate vulnerability reduction and adaptation via forestry, due to a disconnect between official climate policy and actual decision making at the level of forest—and more generally land—management" (ibid.). Rather than merged, these compatible agendas often remain parallel activities.

"One frame fits all" therefore does not hold when it comes to attributions of weather-related crises or ranking the importance of environmental problems; climate-centric framings of disaster may yield more proactive policy responses in some contexts than in others. They also might be more relevant in countries where anti-climate-change forces abound, such as the United States. Anti-environmental campaigns and climate skepticism are less prevalent in the Global South (Painter & Ashe, 2012), or they can take forms other than skepticism about human-induced climate change (Lahsen 2017). Where such counter-forces are prevalent and obvious, attributions might help consolidate belief in climate change as real and to be reckoned with.

One frame may not fit a single national context, either, when it comes to tendencies to link extreme weather events to climate change, even for the same subgroup of actors. Climate-concerned Brazilian scientists drew attention to non-climatic factors in the case of the 2014–2015 Southeastern drought (e.g., poor governance by both public and private entities).[1] However, even in that same case, some prominent Brazilian scientists also adopted climate-centric framing, drawing attention to the loss of "flying rivers" caused by national deforestation. This shows the role of context and purpose in framing choices, and that the climate frame also sometimes serves Brazil's environmental coalition.

5 | FRAMING AND NORMATIVITY

Regardless of whether climate change is large, small, or unknown, disasters that follow extreme weather events have multiple causes, in Brazil and elsewhere. Analysts' choices of analytic frameworks always highlight one cause over

others and are thus inherently political, whether or not they recognize this. Identifying the degree to which a climate event's intensity or duration is due to anthropogenic meddling is a quantitative matter that, even when rigorous, is still subject to dispute (Jézéquel et al., 2018). The analytic frames we use to explore the degree to which a climate event or its anthropogenic increment causes damage are normative—insofar as each frame locates causality in different factors and thus has different implications for responsibility and action. Norms are implicit in any analytic frame (Giddens, 1999; Sayer, 1992), including those specific to climate change (Callison, 2015; Hulme, 2011; Rudiak-Gould, 2015).

Any framing of, or theoretical approach to, the analysis of human–environment relations embeds choices about the variables that matter and the relations among these variables. They embed choices about the import of structure, history, and context (Farmer et al., 2004; Sayer, 1992, p. 2). Indeed, we always observe and understand via *a priori* knowledge or axioms that prefigure experience (Lund, 2014). Which framing prevails in any given causal analysis vitally shapes understandings of problems we observe and their solutions. In turn, these understandings inevitably shape responsibility (Calabresi, 1975; Hart & Honoré, 1959) or "blame games" (Hood, 2010) whereby actors apply their frames to attribute responsibility for the creation and resolution of societal problems. Frames are chosen within value-laden perspectives by scientific analysts as much as by lay persons—given the implicit solutions and responsibilities that a selected frame will serve. This is partly why Media Matters for America and WMO communications scholars try to guide scientists' constructions and choices.

Cause is thus contentious. It points a finger, identifying the responsible and the guilty (Calabresi, 1975; Hart & Honoré, 1959). Producing a seemingly pure neutral scientific ideal of causality that links climate events directly to damage erases some of that contention from view, since a biophysical chain of events leading back to a climate hazard blames everyone, being "anthropo"-genic (generated by all humans) and thus no one (Castree et al., 2014; Rudiak-Gould, 2015; Schwartz, 2019).

Different frames embody different moral stances—whether the expert analyst is conscious of this or not. Cashore and Bernstein (2020, p. 1) show that "... experts carry hidden cognitive frames about how to conceive of the problem at hand. These frames, in turn, strongly influence policy prescriptions." Morality, thus, must be acknowledged in any analysis involving humans, because morality—the normative "shoulds," "oughts," expectations, desires and priorities that guide human action—is an empirically observable element in causality of any human action. While methods can be value free, theory, or the frames we bring to research, cannot (Sari, 2014, p. 235), since theory or frame can only be identified by a judgment of their effect on something, an outcome, that is *humanly valued* (Drèze & Sen, 1989, p. 15; Giddens, 1999, p. 5). Any motive for research or reporting is a human motive, and so no approach to knowing comes without purpose. Acknowledging the power and social content of frames makes us aware of the implicit judgments they always carry. This can clarify moral choices often obscured by reductionist technocratic discourses.

6 | CONCLUSION

Politics-sensitive analysis is needed to gauge the strategic value of climate-centric disaster attribution in any given context. Attributing the damages, even incremental damages, only to the climate change increment is incomplete and thus misleading—since even the increment can only be a function of the degree of vulnerability; the incremental damage, like disaster writ large, does not fall from the sky. We caution awareness: climate change never causes loss or damage independently of the social conditions on the ground in specific places; the degree to which climate change can trigger disaster depends on the degree to which people are already exposed and precarious. When explaining disaster, whether or not climate-related, we must explain and address such vulnerabilities—for which there are well-established analytic methods.

We view climate change as a major problem for humanity. We do not challenge, nor would we ever diminish, the important scientific effort to attribute extreme weather events to anthropogenic climate change. Explaining and reducing climate change is imperative. We do suggest, however, that scientific research and journalistic accounts that attribute particular *crises* to climate events or climate change need to be examined for embedded assumptions about meanings, priorities, and causal relations, not least assumptions about the politics and policy consequences of climate-centric disaster attribution. The stress on climate as cause may be meant to call attention to human actions as the cause. However, the framing can skew attention toward stressors "from the sky" rather than to the social, and often more treatable, causes of weather-related crises. Climate-centric disaster framing is politically useful to actors with interest in

diverting attention from local, national and international policy initiatives that might bring—or could have brought—more direct and locally relevant remedial action.

Where the purpose is to identify ways to reduce disasters and attribute responsibility for damage, it is imperative to attribute the associated damages to the causes of vulnerabilities in place. This is a separate analysis from that of demonstrating the degree to which climate change is a driver behind a given climate event. The latter can attribute the anthropogenic element of the climate event within the statistical possibilities of measure, trends, and projections. The vulnerability analysis can attribute damages that follow the climate event to on-the-ground susceptibilities to damage within the analytic possibilities of social and political–economic enquiry.

It is encouraging that the IPCC (IPCC, 2012, 2014) now acknowledges social and political–economic causes of vulnerability as more central to the picture of climate crises. Reconciliation of climate-centric disaster attribution and vulnerability-centric disaster attribution remains difficult, however, since their framings of responsibility can lead in different directions. Further research might explore the extent to which this tension could be reduced (a) by systematically accounting for factors such as national and global overconsumption and making the causes of poverty and inequality central to climate analysis and policy foci across scale, which currently is not common, and (b) by expanding the international mitigation-centered climate regime to also treat climate adaptation and resilience policy as simultaneously local, national, and global responsibilities. These may be realistic first steps and policy goals.

CONFLICT OF INTEREST
The authors have declared no conflicts of interest for this article.

AUTHOR CONTRIBUTIONS
Myanna Lahsen: Conceptualization (equal); data curation (equal); formal analysis (equal); writing – original draft (equal); writing – review and editing (equal). **Jesse Ribot:** Conceptualization (equal); data curation (equal); formal analysis (equal); writing – original draft (equal); writing – review and editing (equal).

DATA AVAILABILITY STATEMENT
Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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ENDNOTE
[1] See, for example, Bonduki (2014): "The crisis is not just the result of an unprecedented drought. It had been announced since 2010, but [the privatized, formerly public water company] Sabesp, thinking as a private company, sold more water than it could. The company's own 2011 report states that it was drawing more water from the system than it replenished."

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