



ARTICLE

A Dilemma of Language: “Natural Disasters” in Academic Literature

Ksenia Chmutina¹ · Jason von Meding²

© The Author(s) 2019

Abstract For decades sections of the academic community have been emphasizing that disasters are not natural. Nevertheless, politicians, the media, various international organizations—and, more surprisingly, many established researchers working in disaster studies—are still widely using the expression “natural disaster.” We systematically analyzed the usage of the expression “natural disaster” by disaster studies researchers in 589 articles in six key academic journals representative of disaster studies research, and found that authors are using the expression in three principal ways: (1) delineating natural and human-induced hazards; (2) using the expression to leverage popularity; and (3) critiquing the expression “natural disaster.” We also identified vulnerability themes that illustrate the context of “natural disaster” usage. The implications of continuing to use this expression, while explicitly researching human vulnerability, are wide-ranging, and we explore what this means for us and our peers. This study particularly aims to stimulate debate within the disaster studies research community and related fields as to whether the term “natural disaster” is really fit for purpose moving forward.

Keywords Academic communication · Disasters · Natural hazards · Language

✉ Ksenia Chmutina
k.chmutina@lboro.ac.uk

¹ School of Architecture, Building and Civil Engineering, Loughborough University, Loughborough LE11 3TU, UK

² Florida Institute for Built Environment Resilience, University of Florida, Gainesville, FL 32611, USA

1 Introduction

The 2015 Gorkha Earthquake struck Nepal, resulting in over 9000 deaths and over USD 10 billion in damages (not to mention months of disruption and psychological impacts). But one can argue that despite the huge financial, structural, and human toll, the earthquake was not unusual or unexpected. Moreover, stronger earthquakes often occur around the world causing less damage. Why, given the extent of current knowledge, are the livelihoods and assets of the most marginalized people still disproportionately impacted?

It is commonly accepted that a disaster is defined as “a serious disruption of the functioning of a community or a society at any scale due to *hazardous events interacting with conditions of exposure, vulnerability and capacity*, leading to one or more of the following: human, material, economic and environmental losses and impacts” (UNISDR 2018, authors’ emphasis). This definition highlights that hazards can turn into a disaster because of human acts of omission and commission rather than an act of nature, and that disasters are caused more by socio-economic than natural factors. Nevertheless, many scientific disciplines refer to disasters as “natural.” For many researchers, focused mostly on the “natural hazard” component of the disaster, the construct seems valid. However, in many social science disciplines (in which research epistemology is more aligned with a social construction lens) the expression sits uncomfortably at best, particularly given the contemporary understanding of the role of vulnerability in driving disaster impacts on society.

This article argues that by continuously blaming “nature” and putting the responsibility for failures of development on “freak” natural phenomena or “acts of God,” we enable those who create disaster risks by accepting poor

urban planning, increasing socioeconomic inequalities, nonexistent or poorly regulated policies, and lack of proactive adaptation and mitigation to avoid detection. We support this argument with an analysis of 589 academic articles. This body of work in disaster studies¹ often focuses on the impacts of hazards and discusses the vulnerabilities of those affected; the message is clear that while hazards are natural, disasters are not. However, despite the clear understanding of the social and political root causes of disaster, the expression "natural disaster" persists in these same articles. If disaster studies are really to support justice, equity, and well-being, the language of those most attuned to the complex social construction of disaster risk must be used to accurately apportion blame to the real causes of disaster.

2 Non-natural Disasters

The argument that disasters are not natural is not new; in the eighteenth century, Rousseau questioned the "naturalness" of the destruction caused in Lisbon by the 1755 earthquake and tsunami, and suggested that Lisbon's high population density contributed to the toll (Rousseau, letter to Voltaire, 1756 in Masters and Kelly 1990, p. 110). Academics have also been questioning for over 40 years how "natural" so-called "natural disasters" are (Ball 1975; O'Keefe et al. 1976; Hewitt 1983; Oliver-Smith 1986; Cannon 1994; Smith 2005; Kelman et al. 2016; Chmutina et al. 2019). Kelman (2010) provides a valuable overview of why disasters are not "natural." Despite pushback from those who prefer to retain the expression, a segment of the academic community has always maintained that the expression "natural disaster" is a misnomer, highlighting how a hazard turns into a disaster and the role that vulnerability plays in this process—for example, a drought in Northeast Nigeria (Kolawole 1987), a typhoon in the Philippines (Gaillard et al. 2007), or a hurricane in New Orleans (Youngman 2015)—emphasizing the role of regulations and building codes (Chmutina and Boshier 2015; Rahman 2018), urban planning (Bull-Kamanga et al. 2003), risk management and awareness raising (Mora 2009), politics, governance, and media (Gould et al. 2016), and development, growth, and culture (Bankoff 2001; Ward and Shively 2017) in reducing vulnerability and disaster risk.

As highlighted in the UNISDR definition, disasters result from the combination of natural hazards and social and human vulnerability, including development activities

that are ignorant of local hazardous conditions. Vulnerability originates in a human experience and "represents the physical, economic, political and social susceptibility or predisposition of a community to damage in a case [of] a destabilising phenomenon" (Cardona 2003, p. 37), meaning that a series of extreme (yet often permanent) conditions make some social groups—or individuals—fragile. Thus, disasters do not impact all communities and societies equally; the increase in the occurrence of disasters disproportionately impacts the poor (Wisner et al. 2004; O'Brien et al. 2006).

We should also note the importance of the "disruption of the functioning of a community or a society" (UNISDR 2018) in this definition—an earthquake that happens in an uninhabited area is not considered a disaster. While earthquakes, droughts, floods, and storms are natural hazards, they lead to deaths and damages—that is, disasters—that result from human acts of omission and commission rather than from acts of nature (UNISDR 2010). A hazard becomes a disaster because its impact threatens the lives and livelihoods of people who are often vulnerable due to discrimination and marginalization, inequitable access to resources, knowledge, and support, as well as rapid urbanization, environmental degradation, and climate change. A hazard cannot be prevented; disasters, however, can be.

With the increased use of social media as an intellectual playground, many academics have become particularly proactive in explaining this misnomer and discouraging its use (see #NoNaturalDisasters on Twitter). Recent articles of a more journalistic tone have also explored the issue within the public discourse (Chmutina et al. 2017; von Meding et al. 2017; Sutter 2018). Yet, despite the widespread awareness of the problem in the academic community, the use of the term "natural disaster" actually appears to be growing. As we increasingly see disasters framed in "narratives of destruction" that are hazard-centric and depoliticized, we must find ways to push back against the trend. A great concern is the use of the misnomer among scholars that are researching human vulnerability.

Despite significant evidence that demonstrates why disasters are not natural, some scholars defend the expression. A common retort is that by abandoning "natural disaster," we might ignore the natural element of a disaster. Brookfield (1999, p. 10) argued that "it is wrong to neglect geophysical change and attribute all blame to human forces." However, this is not an argument that we make or have seen made. The point is certainly not to pretend that natural hazards do not exist or contribute to disasters. Some apologists for the expression "natural disaster" further raise the idea that humans are part of nature. Gill (2015) suggested that the widespread use of the

¹ Here we use a broad definition of disaster studies—it comprises any research that is focused on disasters and their components, and ranges from human geography to history to structural engineering.

misnomer may be due to multiple reasons, including a lack of awareness; wanting to differentiate a natural process from a human-induced one (that is, an earthquake has a natural origin, whereas a nuclear incident is anthropogenic); using the expression as a convenient term and a boundary object that allows communication and understanding among a broad range of stakeholders (that is, everyone understands what it means); and a theistic view. Some researchers that advocate for the continued usage of the expression argue that we have no proof of the negative impact of its usage.

3 Methods

The overarching aim of this article is to better understand how the expression “natural disaster” is used in disaster-related academic research and whether its usage manufactures any tension with sentiments expressed by the authors that use it. We are specifically interested in authors that demonstrate an understanding that disasters are socially constructed. Why do such authors continue to use the expression “natural disaster”? If they use it, how do they use it? We also reflect on alternatives to “natural disaster” that are already commonly utilized, as well as those suggested but not widely used in practice.

We initially searched academic literature from 1976² to October 2018 for the expression “natural disaster.” We adopted an electronic search strategy and targeted literature in the English language on ScienceDirect and Scopus. On Scopus, there were 27,256 documents that matched the search, while on ScienceDirect there were 29,216 documents that matched the search (as of 9 October 2018). This was much too broad, and we needed to focus on a community of researchers that should understand disasters better than any other, particularly with a vulnerability lens, that is, those publishing in journals specifically linked to the study of disasters. We identified six well-regarded key journals in disaster studies/science that deal with societal aspects of disasters and are illustrative and representative of the research that is happening in this field. The selected journals were: *Natural Hazards*; *International Journal of Disaster Risk Science*; *International Journal of Disaster Risk Reduction*; *Disaster Prevention and Management*; *Disasters*; and *International Journal of Disaster Resilience in the Built Environment*. These journals are multidisciplinary and open to original research that places human vulnerability within the frame. The sample was narrowed

to 589 articles across the six journals based on the criteria listed below. Based on these inclusion and exclusion criteria, the titles, abstracts, full texts, and keywords were examined in October 2018. Unsuitable articles were discarded moving forward.

Inclusion criteria included:

- Listed in one of the six selected journals;
- Mention “natural disaster” in full text search (not including references);
- Research article;
- Explicitly or implicitly focus on human vulnerability based on abstract and keywords.

Exclusion criteria excluded:

- Reports of meetings, briefing documents, editorials, book reviews;
- Usage of “natural disaster” related to “International Decade for Natural Disaster Reduction” or other events/publications that used the expression in their titles;
- Articles focused only on a hazard and not on vulnerability.

We examined the remaining 589 articles for ways in which the expression “natural disaster” was utilized. A careful reading and re-reading of the articles, as part of a thematic analysis, allowed us to explore how “natural disaster” was used and begin to understand the context within which the relationship to vulnerability appeared; the results of this approach are summarized in Table 1.

Our analysis determined that authors were using the expression in three principal ways: (1) delineating natural and human-induced hazards; (2) using the expression to leverage popularity/as a buzzword; and (3) critiquing the expression “natural disaster.”

4 Results and Discussion

The following subsections will discuss the context within which the “natural disasters” misnomer is used in the analyzed articles and the implications of its use in academic literature.

4.1 How is “Natural Disaster” Used in the Sampled Articles?

As demonstrated by the numbers from the search on ScienceDirect and Scopus, the expression “natural disaster” appears to be widely employed in the academic literature in disaster studies. This may be the case because it is a regularly used expression that was previously used by the United Nations during the 1990s “International Decade for

² The decision to take 1976 as the starting point was a symbolic choice—this was the year when O’Keeffe et al. published the article that argued that disasters are not natural. We appreciate that this is not the first paper that made that argument, but it has become a somewhat seminal piece in academic circles.

Table 1 Overview of the “natural disaster” expression usage in the 589 selected research articles in the six selected academic journals

Journal title	Total number of articles published since journal's inception	Number of articles using the “natural disaster” expression that fit the criteria	Key focus in the analyzed articles
International Journal of Disaster Risk Reduction (2012)	832	158	Vulnerable groups (for example, women or children); coping capacities; impacts of disasters
Disaster Prevention and Management (1992)	2236	153	Disaster types; case studies of different disasters; conflicts; human aspect of disaster impacts
Disasters (1977)	1365	121	Disaster governance; awareness; media; built environment; social impacts of disasters; displacement
International Journal of Disaster Risk Science (2010)	252	32	Disaster risk reduction and social vulnerability
Natural Hazards (1989)	5450	98	Natural hazards
International Journal of Disaster Resilience in the Built Environment (2010)	307	27	Post-disaster reconstruction; recovery; the role of built environment professionals

Natural Disaster Reduction” (authors’ emphasis), and has been popularized and constantly used by the media. There may often be no agenda behind this—only a measure of ignorance—but it would appear that the use sometimes operates as a way to trigger particular associations and behaviors among the public. At its most harmful, it serves to convince people that there is little that we, or those in power, can do.

“Natural disasters” even has an entry in the Oxford English Language Dictionary (2019): “A natural event such as a flood, earthquake, or hurricane that causes great damage or loss of life.” Many of the concepts within the field of disaster studies are malleable—consider resilience, vulnerability, capacity—and precision in language is somewhat rare (Sun and Faas 2018; Bankoff 2019). This might lead some to conclude that the value of the word is in “how one uses it.” However, we argue that the opposite is true; the inherent openness of many disaster-related concepts renders it all the more imperative that we insist on rigor in our writing and thinking to avoid misunderstandings. Based on our analysis, three broad categories (Fig. 1) in which the expression is used were identified.

4.1.1 Delineating Natural and Human-Induced Hazards

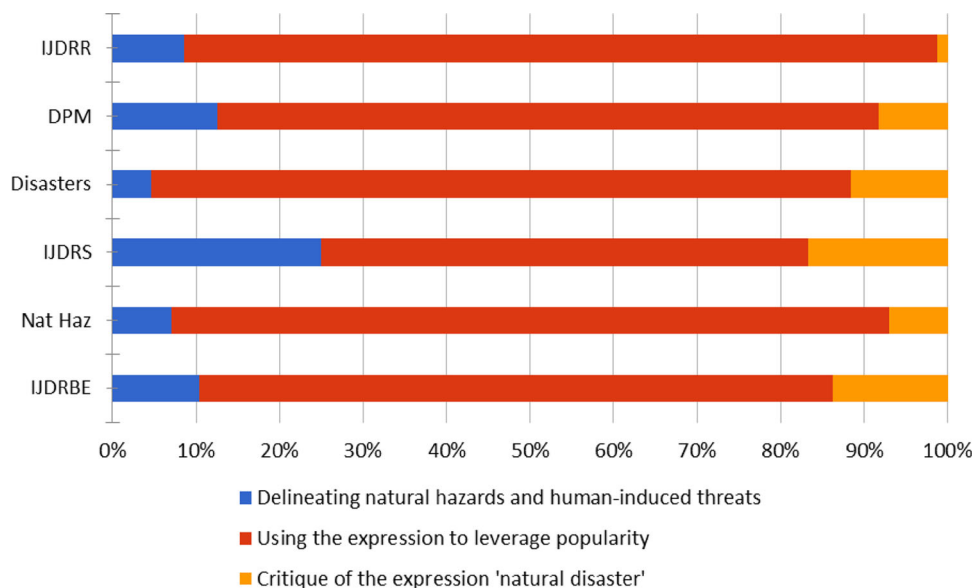
Among the articles sampled, some authors ($n = 59$) demonstrate a clear understanding that disasters are socially constructed but appear to use the expression “natural disaster” as a way to indicate that the disaster has a “natural trigger.” This debate has become particularly prominent in recent years—many authors argue that the use of the expression “natural disaster” works (and the

language should thus not be changed) because it separates “natural” and “technological” disasters (for example, nuclear meltdown, building collapse), conflicts, and wars.

Many publications in this category discussed various aspects of risk management, including preparedness, protection, response, and recovery. The role of governance in emergency situations was also prominent. Some publications discussed the impact of disasters in conflict-ridden contexts. Yet, both disasters and conflicts—while having different characteristics—are often a result of the same root causes. The research shows that the interaction between a disaster and a conflict is complex, but contexts in which conflicts and disasters overlap are daily realities for the people affected. Effective risk reduction programs should reflect conflict–disaster complexities and respond to them in a context-specific and holistic manner (UNDP 2011; Harris et al. 2013; Harrowell and Ozerdem 2019).

Some authors are so focused on the hazard they are studying that they fall into this language without thinking, despite some of the research actually emphasizing the “non-naturalness” of a disaster. A significant amount of disaster research comes from the geological sciences that focus on earthquakes, volcanic eruptions, and landslides, and not so often on issues of underlying vulnerability. This kind of focus does not encourage the consideration of broader social, economic, and political aspects of disaster risk reduction. This is where a combination of education and awareness raising among and by scholars should play an important role.

Fig. 1 Ratio of categories within which the “natural disaster” expression is used in the 589 selected research articles in the six selected academic journals (some articles feature in more than one category)



4.1.2 Using the Expression “Natural Disaster” to Leverage Popularity/as a Buzzword

This theme was the most prominent to emerge from the analysis. The majority of articles sampled ($n = 522$) were found to be using the expression without seeming to consider the implications. Often the expression is used alongside “social vulnerability,” producing an odd mixture of language. Many authors argue that with the use of an appropriate combination of technical, social, economic, and political interventions, disaster risk can be reduced—however, they qualify this by apportioning blame to Mother Nature.

This is particularly problematic, as the expression is being used for convenience rather than for intellectual clarity. It is often argued (for example, debates on social media) that the phrase is used because it is understood by a general audience. With scientists having an increasing responsibility to communicate their research to a lay audience, this argument is the most commonly advanced.

In most cases that fall into this category, the use of the expression “natural disaster” could easily be replaced with “disaster.” Frequently the two are used interchangeably in these articles. At times, authors appear to be using the expression because they are referencing an article that used it. They then proceed to adopt the language later on in their article. Quite frequently, the use of “natural disaster” appears to be accidental—“disaster” is used throughout, bar a single use of “natural disaster.”

4.1.3 Critiquing the Expression “Natural Disaster”

Many authors use the expression in the course of critiquing the way that others have used it. In 13 analyzed articles, the

most frequently used words included “risk,” “vulnerable/vulnerability,” “hazard,” “development,” “social,” “income,” “politics,” and “people.” The authors (for example Cannon 1994; Ward and Shively 2017) point out that considering social vulnerability, economic development, culture, risk perception, politics, and practice clarify the connections between natural hazards and disastrous outcomes. Cannon (1994, p. 17) explained the relationship between vulnerability and a disaster, and emphasized that “[focusing on the behavior of nature] encourages technical solutions to the supposed excesses of the yet untamed side of nature” instead of distinguishing “the naturalness of hazards from the human causation of disasters.”

Some of the authors in this category discuss interdependencies between demographics and disaster impacts (Fothergill et al. 1999); others argue for reconsideration of the way we understand and therefore implement disaster risk management (DRM)—and the theory and terminology around it (Chipangura et al. 2016). But the overall message is the same—the root causes of social vulnerability (that is, power-driven processes) turn hazards into disasters. Authors, critical of the expression, highlight the danger of putting an emphasis on the dramatic, descriptive, climatological, or geological qualities of hazards. This kind of emphasis positions these events as something “natural.”

4.1.4 Most Common Themes of Vulnerability to Disasters

Given that so many authors continue to use the expression “natural disaster,” while clearly aware of the social construction of a disaster, we further analyzed the sample articles to ascertain the context in which vulnerability is discussed. The most prominent themes were:

- Phases of disaster risk management: these articles ($n = 71$) focused on prevention, preparedness, mitigation, rescue, response, and recovery activities. They explored how vulnerabilities are created or reduced depending on the approach to disaster risk management. Preparedness is seen by many authors as the most critical phase for reducing vulnerability—thus authors argue that although we cannot prevent natural processes from happening, their impacts can be reduced if appropriate measures are taken. This fact underpins the reality that disasters are socially constructed; but in many cases the “natural disasters” expression is used nevertheless.
 - The vulnerability of particular groups: some articles ($n = 69$) emphasized that disasters impact certain groups of the population more than others. Here, gender (with exclusive focus on the female sex), age (mainly children and the elderly), ethnicity, low income, disability, or lack of access to resources (for example, in the case of refugees) are discussed. These articles demonstrate that vulnerability is often increased due to factors such as construction patterns, language, social isolation, or cultural insensitivities. Such arguments clearly articulate the progression of vulnerability, yet the “natural disasters” expression still appears as a buzzword.
 - Community: these articles ($n = 55$) largely presented research on the role of a community in reducing vulnerabilities. Here, coping strategies (including traditional and local knowledge), livelihood choices, community activities in awareness raising, and DRM phases are discussed. Some articles focus on the community, demonstrating examples of “living” with natural hazards (and in some cases showing that their livelihoods depend on natural hazards), thus emphasizing that not all hazards turn into disasters.
 - Built environment: the articles ($n = 47$) in this category focused on housing, shelter, and infrastructure operations (including water supply, hospitals, schools, and so on). Rather than discussing the technical performance of the built environment, these authors largely focus on the impacts that failure of the built environment has on people and how this can be improved (for example, “build back better” ideas). They also focus on the challenges that arise when the built environment is not suitable for the most vulnerable or design fails to take into account local context.
 - Health and well-being: these articles ($n = 28$) primarily focused on the cascading effects of disasters on public health and the mental well-being of those affected. Authors in particular argue that vulnerability is likely to increase if action is not taken to address health and well-being deficits. Articles focusing on public health emphasize the role of infrastructure in preventing disease in a post-disaster context, pointing out that disease spreads when infrastructure—rather than nature—does not perform.
 - Governance: a wide range of articles ($n = 61$) discussed the role of local and national governments and institutions in DRM, with an emphasis on capacity and capability, as well as the importance of collaboration, participation, and partnerships. Authors highlight the role that effective governance can play in reducing the impact of a disaster if implemented appropriately, taking into account the context and engaging with a wide range of stakeholders.
 - Location: these articles ($n = 312$) focused on the impacts of disasters in both urban and rural settings, as well as looked at the particulars of living on islands. Authors focus on certain groups that are particular to these three contexts and take into account location-specific characteristics. This again demonstrates that disasters affect different locations—and people living within them—differently, as exposure changes, and that a similar hazard can either create or destroy livelihoods.
 - Vulnerability assessments: these articles ($n = 67$) discussed various approaches to assessing and measuring vulnerability of different population groups, locations, organizations, and so on. They highlight that socioeconomic and demographic data are crucial in order to understand the impact of disasters, and how such information can support decision making about housing, infrastructure, or DRM measures, in order to prepare for and prevent disasters. Some articles also highlight the importance of understanding economic and social conditions prior to a disaster in order to be able to assess vulnerability holistically.
 - Risk perception: the articles ($n = 39$) in this category explored the links between vulnerability and risk perception. They highlight that the way people perceive risk affects their behavior before, during, and after a disaster. Cultural and religious values, as well as social norms are discussed as they often shape our risk perception. At the same time, the role of economic development and self-determination are critical to consider. Authors emphasize the role of education and raising awareness in adjusting risk perceptions. The fact that many people have a very hazard-centric understanding of disasters can lead to a skewed perception of risk.
- Looking at the vulnerability themes that emerge from the sample of articles, we can determine that authors overwhelmingly appreciate that non-natural factors turn a hazard into a disaster—we did not come across any articles that argue the dominant role of nature in creating disaster

risk. Authors mostly display nuance in argument and a depth of knowledge when talking about human vulnerability and its role in creating disasters. But most use “natural disaster” as a buzzword, and the terminology remains problematic.

4.2 Authors are Confused

The analysis revealed that many disaster studies’ researchers—while they explicitly explain why disasters are not an act of nature—use the expression “natural disasters” nevertheless. These authors emphasize that disasters cannot be separated from broader issues such as development (as economic change can create vulnerability), historical roots and cultural values, socioeconomic change that takes place prior to a disaster, the role of various stakeholders in creating and reducing disaster risk through their decision making and the use (or lack) of DRM activities, inequality (ranging from gendered social rules to access to resources), and preparedness measures.

Some authors have completed fascinating overviews of disaster impacts on human lives in the last 100 or more years and the changes in disaster studies; their findings show how vulnerability has started to play an important role in DRM and that the science has moved on from focusing on hazards only—and the way to change nature (that is, purely technical solutions)—and how multi- and trans-disciplinarity has been playing a critical role in the way that we understand disasters. Most of the authors comprising our sample make some form of argument that disasters are socially constructed and that multidisciplinary solutions are required to reduce disaster risks. Yet, it seems that the use of the expression “natural disaster” is so ingrained that the authors either do not appreciate the irony of the use, or they feel that the readers would not understand their message otherwise.

The continuous use of the expression may be due to the fact that many see it as a “convenience term” or a boundary object allowing for communication without a need to explore a deeper meaning. This could also be explained by the use of the phrase by “influencers” in the field of disaster studies. Some well-known and widely cited authors have liberally utilized the expression, and it has been picked up on in the literature that cites them.

4.3 Why does the Expression “Natural Disaster” Create a Dilemma?

A common refrain is that there are no better options than “natural disaster” to convey what authors wish to convey. A big part of the problem is that authors intend to convey a diversity of meanings. “Natural disaster” as an expression does not mean one thing to all people. It is a malleable

expression that can be used almost accidentally while focusing with genuine intent on people’s vulnerability. In some cases, authors say “flood disaster” or “earthquake disaster,” which is just as problematic. If we focus on disasters as “destructive events,” there will always be a tendency to prioritize the hazard in our discourse. But disasters are long-term processes of maldevelopment. Arguably, there is not even any such thing as a “rapid-onset” disaster.

The downside of using the expression is multifaceted. It removes responsibility from those often at fault and lessens the likelihood of meaningful discourse around power, class, inequality, and marginalization that should accompany any attempt to understand disasters (Chmutina et al. 2019). It can also serve up a narrative that prioritizes the story of hazard and destruction over any consideration of processes of development (or maldevelopment) (Miskimmon et al. 2013). The expression also regularly serves the interests of the powerful as a symbolic tool. It signifies that, while we might like to prevent disaster losses and impacts, we are at the mercy of nature. It externalizes the threat beyond the human dimension (Wallace-Wells 2019). This allows the celebration of “man’s” dominion over nature and maintains the power structure that might otherwise be threatened by any examination of the way that the dominant socioeconomic system creates risk.

The expression “natural disaster” is often employed by those advocating technocratic and market-based solutions—it is unfortunately reinforced by nongovernment and intergovernmental organizations and policymakers (Chmutina et al. 2019), as well as the popular media. This fits well with a “free market” driven disaster industry (Pelling 2001; Arag n-Durand 2009). Seeing disasters as natural means that nature is dangerous but can nevertheless be managed (Gould et al. 2016)—or when it cannot be managed, the blame can be put on nature. Such a position reinforces the status quo, avoiding responsibility for failures of development by “blaming nature.”

If a disaster is conceived of as a “natural” phenomenon, the exposure of vulnerable people to disaster risk is concealed, inhibiting the emergence of socially sensitive responses at the policy level. Ignorance, carelessness, greed, and even malice of decision makers can be masked by a focus on “unexpected” and “unforeseen” “natural” forces, allowing for praise in terms of reactive actions, preparedness, and mitigation to minimize damages (that is, human capabilities are subordinated to the “natural” forces, yet we are trying to fight them for you—but after all “nature always wins”).

As Bankoff (2010) explained, “it suits some people to explain them [natural disasters] that way. As natural events, disasters are nobody’s fault. The people affected are victims at the mercy of a capricious climate and/or an

unpredictable seismicity. Not so long ago, disasters were simply considered 'Acts of God,' even justified as chastisement by a wrathful deity for the misdemeanours of sinners." If the origin of disasters is natural, then our ability to address them through policy is limited. That would represent an ideal situation for those who are opposed to seriously addressing systemic economic, political, social, and environmental injustice.

4.4 Are There Other Options?

Some suggest using "socio-natural disaster," maintaining that this would convey that disasters are socially constructed but have natural triggers. There are also those who suggest only talking about "risks" and avoid using the term completely.

The debate about the use of the phrase and its alternatives has recently been taking place on social media among academics and in other fora. Disaster-related terminology is complex: there is a huge range of definitions, but little consensus among scholars on which definition to use. Thus, finding a phrase that is understood by all may be seen as beneficial—but the implications of such usage must be more critically considered. Moreover, the problematic use of language is an issue in many disciplines. Much of the terminology used today has been historically introduced in Western discourse, often overlooking the culturally and socially acceptable terms of the people who are "researched" in disaster studies (Hsu 2017; Kelman 2018; Bankoff 2019; Gaillard 2019; Staupe-Delgado 2019); it often "serves as justification for Western interference and intervention in the affairs of those regions for our and their sakes" (Bankoff 2001, p. 27). Language is always political (Gee 1999)—and more care should be taken to understand the implications of its use.

Understanding disasters—and the root causes of disasters—is of critical importance to our everyday life; and the potential benefits of scientific research in disaster studies to every individual are clear. Thus, it is crucial how we—as academics—communicate our research. Instead of reciting the established "truths," we should encourage our peers (and the public) to question their assumptions and the status quo, and to start thinking more critically. Writing is "an act of identity in which people align themselves with socio-culturally shaped subject positions, and thereby play their part in reproducing or challenging dominant practices and discourses, and the values, beliefs and interests which they embody" (Ivanič 1998, p. 373). If we are to tackle disaster risk creation (Lewis 1987), our choice of words is a good starting point. As academics, we are more and more often required to show the impact of the research to policymakers. We have an excellent opportunity to inspire a shift in thinking and discourse. One simple thing that we

can do is to communicate more clearly and accurately. We need to be more deliberate and measured in the words that we use. What is often simply a lack of careful and consistent language actually fuels a cycle of misinformation.

So what expression should be used? We suggest to simply use "disaster," and take the opportunity to explain the nuances and root causes in each specific case, that is, to explain that disasters are not simply "natural" events. This would provide us with a great opportunity to also educate as to the true "nature" of disasters as maldevelopment processes.

5 Conclusion

This article demonstrates how ingrained the use of the expression "natural disaster" is through the analysis of academic papers that discuss the role of vulnerability in disaster risk creation, while habitually referring to "natural disasters." One of the most recognized slogans in disaster risk reduction is "From words to action," a noble and much needed effort as words alone are not enough to reduce disaster risks.

However, some words and expressions may actually have a negative impact. We have discussed how one such widely used, but highly contested, expression is "natural disasters." This expression disconnects the reality of the most vulnerable by continuously blaming "nature" and putting the responsibility for failures of development on "freak" natural phenomena or "acts of God."

The understanding that disasters are not natural is arguably on the increase. In 2018, UNISDR stated that the misnomer is no longer to be used in their communications. This commitment has become even more prominent with the publication of the Global Assessment Report (GAR) 2019 (UNDRR 2019). Similarly, some disaster-related journals (including some of those analyzed in this article) are encouraging authors not to use the expression. Yet, the expression is still widely used in academia (as well as in journalism, policy, and international diplomacy).

It is critical that the academic community grapple with this issue at a time when the importance of a consistent message about the root causes of disasters has never been more pressing. We as an academic community should emphasize the difference between a hazard and a disaster, as well as explain disasters as processes of maldevelopment. It is unlikely that the use of "natural disaster" will subside in the wider public discourse without science taking a leading role. It is critical that we embrace, promote, and encourage the use of terminology that actually helps the DRM community to reduce risk. The way disasters are presented and reported plays an important role in

constructing the public perception of the risks associated with natural hazards. It also defines and limits the discourse associated with these events, making it critical that the correct terminology is used.

Acknowledgements We are indebted to JC Gaillard and Lee Boshier for numerous discussions on this topic. Thank you also to the #NoNaturalDisasters crowd on Twitter.

Open Access This article is distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

References

- Aragón-Durand, F.D.J. 2009. Unpacking the social construction of “natural” disaster through policy discourses and institutional responses in Mexico: The case of Chalco Valley’s floods, State of Mexico. Ph.D. thesis, University College London, London. <http://discovery.ucl.ac.uk/18983/1/18983.pdf>. Accessed 3 Sept 2019.
- Ball, N. 1975. The myth of the natural disaster. *Ecology* 5(10): 368–369.
- Bankoff, G. 2001. Rendering the world unsafe: “Vulnerability” as western discourse. *Disasters* 25(1): 19–35.
- Bankoff, G. 2010. No such thing as natural disasters. Harvard International Review. 23 August 2010. <http://hir.harvard.edu/article/?a=2694>. Accessed 3 Sept 2019.
- Bankoff, G. 2019. Remaking the world in our own image: Vulnerability resilience and adaptation as historical discourses. *Disasters* 43(2): 221–239.
- Brookfield, H. 1999. Environmental damage: Distinguishing human from geophysical causes. *Global Environmental Change Part B: Environmental Hazards* 1(1): 3–11.
- Bull-Kamanga, L., K. Diagne, A. Lavell, E. Leon, F. Lerise, H. MacGregor, A. Maskrey, M. Meshack, et al. 2003. From everyday hazards to disasters: The accumulation of risk in urban areas. *Disasters* 15(1): 193–203.
- Cannon, T. 1994. Vulnerability analysis and explanation of “natural” disasters. In *Disasters, development and environment*, ed. A. Varley, 13–30. London: John Wiley and Sons.
- Cardona, O.D. 2003. The need for rethinking the concepts of vulnerability and risk from a holistic perspective: A necessary review and criticism for effective risk management. In *Mapping vulnerability: Disasters, development and people*, ed. G. Bankoff, G. Frerks, and D. Hilhost, 37–51. London: Earthscan.
- Chipangura, P., D. van Niekerk, and G. van Der Waltd. 2016. An exploration of objectivism and social constructivism within the context of disaster risk. *Disaster Prevention and Management* 15(2): 261–274.
- Chmutina, K., and L. Boshier. 2015. Risk reduction or risk production: The social influences upon the implementation of DRR into construction project in Barbados. *International Journal of Disaster Risk Reduction* 13: 10–19.
- Chmutina, K., J. von Meding, and L. Boshier. 2019. Language matters: Dangers of the “natural disaster” misnomer. Contributing paper to Global Assessment Report (GAR) 2019. <https://www.preventionweb.net/publications/view/65974>. Accessed 3 Sept 2019.
- Chmutina, K., J. von Meding, J.C. Gaillard, and L. Boshier. 2017. Why natural disasters aren’t all that natural. OpenDemocracy. <https://www.opendemocracy.net/ksenia-chmutina-jason-von-meding-jc-gaillard-lee-boshier/why-natural-disasters-arent-all-that-natural>. Accessed 3 Sept 2019.
- Fothergill, A., E.G.M. Maestas, and J. DeRouen Darlington. 1999. Race, ethnicity and disasters in the United States: A review of the literature. *Disasters* 23(2): 156–173.
- Gaillard, J.C. 2019. Disaster studies inside out. *Disasters* 43(1): 7–17.
- Gaillard, J.C., C.C. Liamzon, and J.D. Villanueva. 2007. “Natural” disaster? A retrospect into the causes of the late-2004 typhoon disaster in Eastern Luzon, Philippines. *Environmental Hazards* 7(4): 257–270.
- Gee, J. 1999. *An introduction to discourse analysis: Theory and method*. London and New York: Routledge.
- Gill, J.C. 2015. How “natural” is “natural disaster”? EGU blogs. <https://blogs.egu.eu/network/gfgd/2015/01/16/how-natural-is-a-natural-disaster/>. Accessed 3 Sept 2019.
- Gould, K.A., M.M. Garcia, and J.A.C. Remes. 2016. Beyond “natural-disasters-are-not-natural”: The work of state and nature after the 2010 earthquake in Chile. *Journal of Political Ecology* 23(1): 93–114.
- Harris, K., D. Keen, and T. Mitchell. 2013. When disasters and conflicts collide: Improving links between disaster resilience and conflict prevention. <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8228.pdf>. Accessed 3 Sept 2019.
- Harrowell, E., and A. Ozerdem. 2019. Understanding the dilemmas of integrating post-disaster and post-conflict reconstruction initiatives: Evidence from Nepal, Sri Lanka and Indonesia. *International Journal of Disaster Risk Reduction* 36. <https://doi.org/10.1016/j.ijdr.2019.101092>.
- Hewitt, K. (ed.). 1983. *Interpretations of calamity from the viewpoint of human ecology*. Boston: Allen and Unwin.
- Hsu, E.L. 2017. Must disasters be rapidly occurring? The case for an expanded temporal typology of disasters. *Time & Society* 28(3): 904–921.
- Ivanič, R. 1998. *Writing and identity: The discursive construction of identity in academic writing*. Amsterdam: John Benjamins e-platform.
- Kelman, I. 2010. Natural disasters do not exist (natural hazards do not exist either) Version 3, 9 July 2010 (Version 1 was 26 July 2007). <http://www.ilankelman.org/miscellany/NaturalDisasters.rtf>. Accessed 3 Sept 2019.
- Kelman, I. 2018. Lost for words amongst disaster risk science vocabulary? *International Journal of Disaster Risk Science* 9(3): 281–291.
- Kelman, I., J.C. Gaillard, J. Lewis, and J. Mercer. 2016. Learning from the history of disaster vulnerability and resilience research and practice for climate change. *Natural Hazards* 82(1): 129–143.
- Kolawole, A. 1987. Responses to natural and man-made hazards in Borno, Northeast Nigeria. *Disasters* 11(1): 59–66.
- Lewis, J. 1987. Risk, vulnerability and survival: Some post-Chernobyl implications for people, planning and civil defence. *Local Government Studies* 13(4): 75–93.
- Masters, R.D., and C. Kelly (eds.). 1990. *The collected writings of Rousseau*. Vol. 3. Hanover, Lebanon, NH: University Press of New England.
- Miskimmon, A., B. O’Loughlin, and L. Roselle. 2013. *Strategic narratives: Communication power and the new world order*. New York: Routledge.

- Mora, S. 2009. Disasters are not natural: Risk management, a tool for development. *Geological Society London Engineering Geology Special Publications* 22(1): 101–112.
- O'Brien, G., P. O'Keefe, J. Rose, and B. Wisner. 2006. Climate change and disaster management. *Disasters* 30(1): 64–80.
- O'Keefe, P., K. Westgate, and B. Wisner. 1976. Taking the naturalness out of natural disasters. *Nature* 260(5552): 566–567.
- Oliver-Smith, T. 1986. *The Martyred City: Death and rebirth in the Andes*. Albuquerque: University of New Mexico Press.
- Oxford English Language Dictionary. 2019. Online edition. <https://www.oed.com/>. Accessed 5 Sept 2019.
- Pelling, M. 2001. Natural disaster? In *Social nature. Theory, practice and politics*, ed. N. Castree, and B. Braun, 170–188. London: Blackwell.
- Rahman, M.H. 2018. Earthquakes don't kill, built environment does: Evidence from cross-country data. *Economic Modelling* 70(C): 458–468.
- Smith, N. 2005. "There's No Such Thing as a Natural Disaster". Understanding Katrina: Perspectives from the social sciences. <http://understandingkatrina.ssrc.org/Smith>. Accessed 3 Sept 2019.
- Staupe-Delgado, R. 2019. Analysing changes in disaster terminology over the last decade. *International Journal of Disaster Risk Reduction*. <https://doi.org/10.1016/j.ijdr.2019.101161>.
- Sun, L., and A.J. Faas. 2018. Social production of disasters and disaster social constructs: An exercise in disambiguation and reframing. *Disaster Prevention and Management* 27(5): 623–635.
- Sutter, J. 2018. How to talk about hurricanes now. CNN News, 11 October 2018. <https://edition.cnn.com/2018/10/10/health/sutter-natural-disaster-hurricane-michael/index.html>. Accessed 3 Sept 2019.
- UNDP (United Nations Development Programme). 2011. Disaster-conflict interface: Comparative experiences. <http://www.undp.org/content/dam/undp/library/crisis%20prevention/DisasterConflict72p.pdf>. Accessed 3 Sept 2019.
- UNDRR (United Nations Office for Disaster Risk Reduction). 2019. Global Assessment Report 2019. <https://gar.unisdr.org/>. Accessed 3 Sept 2019.
- UNISDR (United Nations International Strategy for Disaster Reduction). 2010. Natural hazards, unnatural disasters: the economics of effective prevention. <http://www.unisdr.org/we/inform/publications/15136>. Accessed 3 Sept 2019.
- UNISDR (United Nations International Strategy for Disaster Reduction). 2018. Terminology. <https://www.unisdr.org/we/inform/terminology#letter-d>. Accessed 3 Sept 2019.
- von Meding, J., G. Forino, J.C. Gaillard, and K. Chmutina. 2017. Grenfell tower fire exposes the injustice of disasters. The conversation. <https://theconversation.com/grenfell-tower-fire-exposes-the-injustice-of-disasters-79666>. Accessed 3 Sept 2019.
- Wallace-Wells, D. 2019. *The uninhabitable earth: Life after warming*. London: Allen Lane.
- Ward, P.S., and G.E. Shively. 2017. Disaster risk, social vulnerability, and economic development. *Disasters* 41(2): 324–351.
- Wisner, B., P. Blaikie, T. Cannon, and I. Davis. 2004. *At risk: Natural hazards, people's vulnerability and disasters*, 2nd edn. London and New York: Routledge.
- Youngman, N. 2015. The development of manufactured flood risk: New Orleans' mid-century growth machine and the hurricane of 1947. *Disasters* 39(S2): 166 – 187.