

Progress, traditions and future directions in research on disasters involving slow-onset hazards

Introduction

Hazards differ markedly in their pattern and speed of manifestation, which in turn greatly affects how researchers as well as authorities interpret and respond to them. Some hazards, such as earthquakes or some types of industrial accidents, can produce disastrous impacts in a matter of seconds if not mitigated. Other types of impacts are more gradual or creeping in their manifestation, such as those partially attributable to drought hazards. Disaster assessments reveal that the impacts of elusive and slow-onset hazards represent a large part of the global disaster burden (UN, 2015a; OCHA, 2011). However, conceptual and policy innovations developed by disaster researchers over the last century are mainly draws on research focused on sudden-onset disasters (Hsu, 2017; Matthewman, 2015; Dynes, 2004; Rosenthal, 1998), such as the mitigation, preparedness, response and recovery phase notion, which assumes that disasters have relatively well-defined beginnings and ends. Little is known, therefore, about disasters involving slow-onset hazards and the unique challenges they pose for disaster risk reduction (DRR) theory and policy.

It is by now widely established among disaster researchers that disasters are not natural (Kelman et al., 2016; O'Keefe, Westgate and Wisner, 1976). Instead, disastrous outcomes result from socio-economic patterns of vulnerability as well as geographical exposure to unmitigated disasters, in combination with inadequate preparation (Birkmann et al., 2013; Wisner et al., 2004; Cutter, 1996). Because hazards do not cause a disaster in and by themselves, disasters can more appropriately be understood as a product of society. In many ways, therefore, all disasters can be considered slow onset from the perspective of history and underlying societal vulnerabilities (Lewis, 1988). Hence, for the purpose of this study, the adverse impacts of slow-onset hazards will instead be conceptualised as *disasters involving slow-onset hazards* (but caused by underlying societal vulnerabilities).

This semi-structured review sets out to assess the state-of-the-art on slow-onset disaster scholarship, focusing both on its central and peripheral literature, as well as the unique policy challenges they pose. By identifying gaps in the existing literature, the review facilitates further knowledge production on the topic of slow-onset disasters. The paper employs a broad focus and is not limited to any particular type of hazard, discipline or conception of slow-onset disaster (e.g. slow-burning crisis, creeping disaster, creeping environmental change), and is structured as follows. In the next section, the review design and methodology is outlined, including the inclusion and exclusion criteria employed in the process. The third section presents the descriptive findings from the literature survey, including both general observations, an overview of key pieces of scholarship as well as what were identified as literatures that indirectly contributed to the topic of slow-onset disaster. Section four consists of a discussion focused on the unique traits associated with slow-onset disasters in addition to a reflection on gaps and further research needs.

2. Design

In the design of literature reviews, an essential consideration is whether it should be structured or unstructured. Although one type of design is not necessarily better than the other—as they serve different purposes—systematic reviews are highly appropriate for themes on which there exists little research and where the state-of-the-art needs to be explored (Jesson et al., 2011; Feak and Swales, 2009; Webster and Watson, 2002). Few topics in disaster research has received as little attention as disasters involving slow-onset hazards (a host of research is available on e.g. droughts, desertification etc., but few of these theorise

onset speed or slow-onset hazard impacts in general), and this study therefore employs a semi-structured review design, sufficiently wide in scope to capture both the literatures directly focused on slow-onset hazards and their impacts, as well as literatures only touching on the topic—either conceptually or empirically.

In this paper efforts have been made to include the vast majority of key contributions on the type or concept of slow-onset/creeping/gradually occurring hazards and their adverse impacts. The following keywords (which are seen as synonymous or related in this context) were used to identify these contributions, in combination with disaster-related terms such as disaster, hazard, crisis, emergency, event, process, and so on:

- Slow (incl. slow-onset, slowly emerging, slow violence, slow-burning)
- Gradual (incl. gradually occurring, gradually manifesting)
- Creeping (incl. creeping environmental problems, creeping crises and disasters)

A subsequent survey of the bibliographies of the initial results ensured that the review is comprehensive (although perhaps not completely exhaustive), as no major contributions seemed to have been overlooked in the initial literature survey. Articles, reports, book chapters and books that only mentioned slow-onset types of hazards or disasters in passing (e.g. stating that the publication in question concerns sudden-onset disasters, but that slow-onset disasters also exist or that focused only on a particular disaster involving a slow-onset hazard—such as the adverse impacts of drought) were not included. Hence, only publications that engage with the term in a substantial way and explicitly as a category were included.

3. Results: contributions to slow-onset disaster research and theory

A great many publications refer to slow-onset disaster or synonymous terms, but for the most part only in passing or as a means of delimiting the focus to sudden-onset disasters (e.g. empirical studies of disaster events noting that there are also slow-onset types, but their particular study is concerned with sudden-onset disasters; others focus on a drought episode and note that it is a slow-onset hazard but the study itself focuses only on droughts). Other research contributions have specific slow-onset hazards and their impacts as their focus, such as influential work carried out on droughts, gradually manifesting geological hazards or the adverse impacts of the El Niño-Southern Oscillation (ENSO) phenomenon, but these rarely make an effort to abstract their findings up to overall statements about slow-onset hazards and their unique preparedness and response demands. It should be noted, however, that from a long-term perspective there are not necessarily any unique challenges posed by slow-onset hazards; both require reductions of vulnerability so as to reduce the prevalence and severity of disasters. Yet, as long as vulnerabilities persist, the manifestation, impact dynamics, disaster management demands and displacement patterns of disasters involving slow-onset hazards arguably pose a different set of challenges than sudden-onset disasters do. Table 1 provides an overview of published works identified as part of this present review effort and represents a comprehensive (although perhaps not fully exhaustive) overview of contributions that have been made towards enhancing our understanding of slow-onset disasters as category and concept to date.

3.1. Patterns and overall observations

At first glance several implications may be drawn from examining the literature mentioned in Table 1. The first one is that although there at present exists a few theoretical innovations of great relevance to the study of slow-onset hazards, we lack work that engages the term and its implications more explicitly (again, works that elaborate extensively on the type). Two such examples are the works of Birkland (2016) and DeLeo (2015) whose influential research on the agenda setting potential of disasters and risks explain why sudden-onset disasters attract greater attention than more elusive and gradual ones from a policy making perspective. However, and although excellent starting points for studying slow-onset phenomena, these contributions do

not constitute theories of slow-onset processes in and by themselves (and this is neither their stated aim). Because our theoretical base in disaster research so often draws on insights derived from investigating the largest sudden-onset disasters that have occurred throughout history, it is likely that some of these are of limited use for the study of slow-onset disasters—at least without some modifications. The work that does exist, for example on the Sahel drought in the early 1970s (Glantz, 1976) and other drought occurrences, has unfortunately not been actively engaged with by disaster sociologists and geographers, who for decades dominated the field (as observed also by Quarantelli, 1998; 2005). As an indirect result, prevailing theoretical models in the field, such as the well-known comprehensive emergency management (CEM) model (emphasising the mitigation, preparedness, response and recovery sequence pattern) implicitly assumes a sudden-onset manifestation pattern (there are also examples of hazards that are of a more perpetual nature, see for example Staupe-Delgado, 2019). Let us now look at some perhaps less obvious themes that emerged during the review process.

Theme 1: typologisation and type-forming efforts

A number of the publications identified as part of this literature survey aimed at either constructing a typology of disasters or discussing various types of disasters—including slow-onset types. In combination with other dimensions, such as scale, hazard intensity or severity of impact, onset-time is among the most common attributes by which disasters have been grouped and categorised. Still, not all of these typologisation efforts and debates have produced meaningful discussions on what characterises the slow-onset type. Our focus here will be directed at substantial efforts at forming the type.

Barton's (1969) ground-breaking study of collective stress situations is among the first of such efforts, and appears relevant to this day. The typology developed by Barton distinguishes between stress with a gradual onset and short impact, gradual onset and long impact, and chronic situations. To date this initial attempt at classifying various forms of stress, including disasters, according to onset-time and impact duration stands out as state-of-the-art and surprisingly little has been invested in building on this important classic.

Table 1. Works identified in the review as engaging with disasters involving slow-onset hazards to some extent

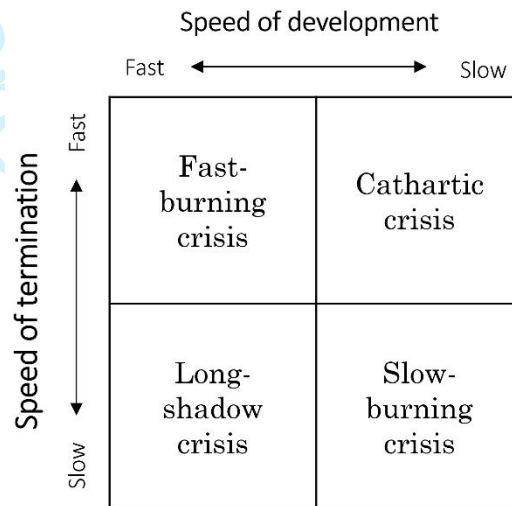
Reference (year)	Term used	Contribution in brief
Barton (1969)	Gradual and chronic stress	Elaborates on forms of collective stress, including slow-onset types
Klinteberg (1979)	Creeping disaster	Outlines the type, including a model of a gradual onset; discusses slow-onset disasters in relation to displacement
Lewis (1988)	Slow onset disaster	All disasters have a slow onset
Glantz (1994)	Creeping environmental problem	Points out the neglected nature of phenomena such as desertification, global warming, famine and deforestation, arguing that low-grade processes are often neglected
Jarman and Kouzmin (1994)	Creeping crisis	Adapting sudden-onset frameworks to slow-onset disasters
Rosenthal (1998)	Creeping disaster	Argues for a shift away from event-based definitions to processual definitions of disaster focused on creeping, elusive and non-conventional hazards and their impacts
Glantz (1999)	Creeping environmental problem	Conceptualises the term and contributes with a political analysis of low-grade cumulative environmental change in the Aral Sea Basin
Porfiriev (2000)	Creeping crisis	Slow-onset disaster as phenomenon and political challenge is discussed from a crisis management and environmental policy perspective

Olson (2000)	Slow onset disaster	Stipulates that disaster phases function somewhat differently in the context of slow-onset disaster impacts
t Hart and Boin (2001)	Slow-burning crisis	Describes slow-onset disasters as one of four types in a typology focused on onset and termination speed; focuses particularly on management and policy challenges
The Social Learning Group (2001)	Global environmental risk	Analyses the policy challenges posed by ozone depletion, acid rain and global warming
McConnell (2003)	Creeping crisis	Clarifies the type including unique response and policy challenges
Greer (2003)	Creeping crisis	Broadens the concept to include macro-level societal pressures
Wisner et al. (2004)	Slow onset disaster	Estimates disaster burden, wider context and societal origin
Twigg (2004)	Slow onset disaster	Elaborates on the type and argues that while drought is by far the best known hazard, it remains absent from most disaster studies
Dynes (2004)	Slow-onset events	Argues for the need for more research on slow-onset and permanent disasters
Buckle (2005)	Slow onset disaster	Compares mandated and ordinary language meanings embedded in the disaster concept, arguing that lay usage includes slow onset disasters, while mandated definitions for practical purposes focus on disaster impacts (events) concentrated in time and space
Shaluf (2007)	Slow onset disaster	Breaks down hazards and disasters into a large number of types
Marulanda et al. (2010)	Accumulated impacts	Outlines how the DesInventar disaster database can be put to use to better capture the impacts of smaller and slow-onset hazards
OCHA (2011)	Slow onset emergency	Identifies unique response and preparedness challenges
Kelman (2011)	Longer-term processes	Elaborates on the type and problematises the concept
Nixon (2011)	Slow violence	Theorises invisible and incremental processes of environmental hazards
Porfiriev (2012)	Creeping crisis	Argues for a broadened research agenda on disasters
UNFCCC (2012)	Slow-onset events	Discusses potential adverse impacts and DRR measures associated with slow-onset disasters attributable to climate change
Matthewman (2015)	Slow onset disaster	Conceptualises slow onset phenomena as part of everyday, undramatic yet cumulative processes
DeLeo (2015)	Emerging problems	Engages with previous work on agenda setting, arguing that emerging crises often do evoke anticipatory action by authorities
Viens and Littmann (2015)	Slowly emerging disaster	Debates whether antimicrobial resistance can be considered a disaster, advances on previous conceptualisations of the term
Birkland (2016)	Potential focusing event	Explains the dynamics through which some natural hazards generate more dread and receive more attention than others
Rubin (2016a)	Slow onset disaster	Argues that slow-onset disasters are less likely to spark conflict and security problems than sudden-onset disasters due to vague patterns of accountability, attribution and outrage
Hsu (2017)	Slow moving and recurrent disasters	Expands on previous discussions on "what is a disaster" and presents a new conceptualisation that addresses previous arguments for limiting the focus to sudden-onset events
Staube-Delgado et al. (2018)	Slow onset disaster	Identifies lack of political will, reactive response systems and lack of inter-agency coordination as barriers for proactive response to slow-onset disasters

Williamson and Courtney (2018)	Slow onset disaster	This editorial to a special issue on temporal aspects of disasters discuss the various timeframes disasters manifest at
Zaidi (2018)	Slow onset disaster	Debates how Sendai loss data indicators may be enhanced to better measure the impacts of small and slow-onset hazards

Similar things can be said about the work of Klinteberg (1979), whose theoretical models and discussions surrounding how disaster impacts and response challenges vary by onset-time have not attracted the amount of attention it perhaps deserves by scholars interested in slow-onset phenomena, despite employing a somewhat Neo-Malthusian undertone.

Figure 1. t'Hart and Boin's typology of crisis (adapted from t'Hart and Boin, 2001)".



A central typology stressing onset-time as a variable is that of t'Hart and Boin (2001: 33), which elaborates extensively on the unique challenges posed by what the authors refer to as the 'slow-burning crisis' and to some extent the 'cathartic' crisis which also manifests slowly but terminates abruptly (see Figure 1). This work is subsequently clarified by McConnell (2003) in his own efforts at typologisation, which at least from the looks of this literature survey appears to be one of the most recent efforts at forming a slow-onset type, if one looks away from the work of Shaluf (2007) who also devoted notable attention to taxonomy, but with the aim of conceptualising the implications of a gradually manifesting hazard.

Theme 2: conceptualisations

The concept of disaster has received considerable attention in recent decades, with several books, special issues and talks dedicated to its conceptualisation (cf. Kelman, 2018; Perry, 2018; Dahlberg et al., 2015; Wisner et al., 2012; Perry and Quarantelli, 2005; Oliver-Smith, 1999; Quarantelli, 1998). Even though some of these publications have argued against including slow-onset phenomena in definitions of disaster (e.g. Stallings, 2005), some of them have also served to shape subsequent discussions on conceptualising slow-onset disasters. One such example is Rosenthal (1998) who argues for a processual view of disasters, and explicitly argues for a disaster definition that also allow for creeping types of phenomena to be covered by disaster definitions. Many of the typology formation efforts mentioned in the previous paragraph also contribute to conceptualisation by describing and clarifying the type.

More recently, the work of Nixon (2011), Matthewman (2015), Hsu (2017) and Williamson and Courtney (2018) have shaped the concept in a more direct way by providing detailed accounts of the unique traits associated with gradually manifesting risks. The work of Nixon (2011) on slow violence, for example, provides a rich and detailed description of imperceptible, gradual change and how slow-onset disasters

provide unique challenges precisely because of their undramatic manifestation. The work of Hsu (2017) is also represents a central contribution to any discussion of disasters involving slow-onset hazards and stands out as one of the first attempts to engage with previous definitions of disaster with an explicit aim of broadening the scope of disaster theory and research to also cover slow-onset types of hazards and disasters. Also making more of an indirect contribution to the same discussion, Viens and Littmann (2015)'s discussion of whether antimicrobial resistance can be considered a disaster, conventionally defined, is also a fruitful contribution in this direction.

Theme 3: works that point out unique traits and challenges

There appears to be broad agreement among the authors of the publications surveyed in this review that slow-onset disasters pose unique challenges for disaster planning and management authorities. Some of these challenges can be inferred indirectly, for example from Birkland (2016; 1998) or DeLeo (2015)'s work on the agenda setting effects of various types of natural hazards and emerging risks. Other contributions, such as the work of Glantz (1994) describes how low-grade, gradual environmental changes are often under-prioritised until their impacts become more severe, but that a focus on precautionary response is a better option than costly crisis management after the fact. Similarly, the typology developed by t'Hart and Boin (2001) describe slow-burning crises as challenging phenomena because their elusive and uncertain nature causes them to produce fragmented responses which eventually lead to fatigue on part of both the media, politicians and response agencies—causing them to often become forgotten disasters.

Others argue that geographical distance can be a major impediment to proactive response. Wisner with colleagues (2004) argue that a major impediment to early response to slow-onset phenomena, such as droughts, famines and conflicts, is that these mostly occur in least developed regions. From a more operational perspective, OCHA (2011: 4) also report that:

the response to most slow-onset emergencies often ends up resembling the response to rapid-onset events – a large influx of resources aimed at saving lives, the creation of temporary and often parallel coordination structures, and a response dominated by food aid. Time after time, the international community waits until a slow-onset event reaches the acute phase and then needs be dealt with using the tools created for a rapid-onset disaster.

None of the papers surveyed as part of this study address these challenges directly. We therefore need more empirical research on how to overcome the challenges posed by slow-onset hazards, such as the tendency for procrastinated response. Insights from for example drought research (e.g. Wilhite, 1993) can serve as a starting point. However, efforts should be made to identify commonalities between slow-onset hazards, their impacts and unique challenges, so as to strengthen the body of knowledge on slow-onset disasters in general.

Theme 4: contributions that note the lack of research on slow-onset disasters

It is noteworthy that so many publications point out the unproportioned lack of research on slow-onset processes relative to sudden-onset disasters. According to Dynes (2004: 2), 'the existing research tradition is predominately Western, community-based, urban, and deals with sudden onset agents from "natural" causes'. Disasters involving slow-onset hazards, in contrast, 'involve displaced populations, are predominately rural, and deal with conflict or slow-onset events, and some might represent new, previously unseen, types of disaster' (ibid.). Other contributions, such as those of Kelman (2011), Porfiriev (2012) and Hsu (2017) do not chiefly concern themselves with bringing the lack of research on slow-onset hazards and their adverse impacts to attention, but are critical to the tendency to equate the concept of disaster with sudden, one-off events. Continued reluctance to study slow-onset hazards in the pursuit of disaster theory cannot then, according to these authors, produce meaningful and broad-based understandings of disaster as a phenomenon or a global challenge.

4. Discussion: gaps and research needs

The small albeit emerging literature on disasters involving slow-onset hazards, including their nature, unique traits and distinct prevention and management challenges reveal both signs of progress and significant gaps. It is clear that research interest in slow-onset processes is on the fore and that we will see an increase in publications on this topic in the future. At the same time, the topic of disasters involving slow-onset hazards face some significant obstacles owing to previous conceptual debates surrounding the concept of disaster, which for a long time did not consider gradual processes as part of the scope of disaster research (see for example Stallings, 2005). As research on the topic increases, there are in particular three strands of analysis that could be particularly fruitful to pursue, and which are not adequately covered in the existing literature as revealed by this literature survey.

Community perspectives

Disaster researchers (and social scientists in general) have for some time now increasingly adopted community perspectives and favoured community-based interventions (Titz, Cannon and Krüger, 2018; Delica-Willison and Gaillard, 2012; Norris et al., 2008). The emergence of the community-based DRR term is but one example of this trend (e.g. Van Niekerk et al., 2018; Shaw, 2012). Research on disaster vulnerability and resilience frequently employ communities as their preferred unit of analysis—and even though it is becoming increasingly clear that communities must also be analysed within their national, regional and global contexts—community and ethnographic perspectives are considered the most appropriate when the social aspects of disasters is in focus (Berkes and Ross, 2013; Gaillard and Mercer, 2012). Such research has provided disaster researchers with key insights on both how communities live with- and prepare for known risks, as well as how communities cope with- and recover from sudden-onset disasters. However, there are very few studies of how communities cope with slow-onset hazards and their impacts in ways where onset speed is a major feature of resulting theory building efforts.

Ethnographic and other field studies of disastrous consequences of slow-onset hazards could potentially produce a number of novel insights by engaging with questions that have hitherto remained largely unexplored in community-centred disaster research. For one, slow-onset processes provide interesting opportunities for assessing the relevance of existing theories based on insights derived from studying sudden-onset disaster preparations or adverse impacts, such as the work of Klinteberg (1979) aimed to do. Comparative perspectives could also be applied here, aiming to for example to draw on studies of droughts, environmental degradation or other slow-onset hazards and their impacts with the purpose of deriving general lessons and insights of relevance to most—if not all disasters involving slow-onset hazards. A first step in this direction could also be to problematise central models and frameworks (e.g. following Olson (2000) who problematises the phases of disaster management in the context of slow-onset hazard impacts) in light of how slow-onset hazards and their adverse consequences typically manifest.

Another fruitful direction to pursue would be to design fieldwork research focused on narratives as a way of conceptualising the gradually manifesting impacts of slow-onset hazards from the point of view of the affected (such as in the work of Jones, 2018). Such analyses could further benefit from paying close attention to community agency, recognising that affected populations are not passive victims but active agents striving to cope as best they can under the prevailing conditions. In combination with a structural perspective focusing on sub-national, national and international authorities as well, such studies would not only contribute to an increased appreciation of idiosyncrasies between community and expert narratives, but also to an enhanced understanding of the lived experiences of affected communities—lived experiences which arguably take on different forms depending on hazard onset speed and pattern. Lastly, engaging with the question of how communities cope with disasters involving slow-onset hazards that do not end, or the impacts of perpetual types of slow-onset hazards (see for example Staupe-Delgado, 2019), holds the promise of advancing knowledge not only on the impacts of slow-onset processes brought about as a result of climatic change but

also how communities balance feelings of place-boundedness, how some places gradually become uninhabitable, and the oftentimes lack of attention given to disasters involving slow-onset hazards by relevant authorities.

Political perspectives

Although rarely directly concerned with slow-onset phenomena, much political work on disaster has important indirect implications for the study of disasters involving slow-onset hazards. Research on voter preferences on for instance the saliency of disaster prevention, large-scale disaster response, or differences between the political saliency of natural and technological hazard types (see Rubin 2016b for an overview) are of significant relevance to research on slow-onset hazards and their consequences. Indeed, disaster politics has been described as an impossible arena; decision makers go unnoticed if successful but can also expect severe sanctions if unsuccessful at preventing or responding adequately to an event (McConnell and Drennan, 2006; Boin and t' Hart 2003). Insights from these studies, among other things, help us understand the political incentives of disaster policies and actions. Broader theories concerning the dynamics through which policy issues and emerging risks penetrate the political agenda (cf. DeLeo, 2015; Kingdon, 2014; Baumgartner and Jones, 2009), in turn, help us understand why some impending disasters receive more attention than others. However, none of these contributions can be considered political theories of disasters involving slow-onset hazards as such.

A political theory of slow-onset processes—at whichever level of abstraction—would to some extent have to explicitly engage with the question of why opportunities for proactive response to disasters involving slow-onset hazards are often missed. While previous research on disaster politics provides important insights on the political dynamics of sudden-onset disasters and their unique management challenges, and although the political dynamics of slow-onset phenomena can to some extent be inferred from this work, we lack the tools to adequately explain the tendency of 'early warning, late response' in the case of disasters involving slow-onset hazards (Lautze et al. 2012). Differently put, even though existing theories adequately provide insight on the tendency to dedicate greater attention to large-scale, geographically concentrated and materially devastating events or more picturesque disasters—disaster theory could benefit from a more concerted effort at theorising the political dynamics of early warning, late response in relation to onset speed and disaster manifestation patterns.

Bridging DRR and climate change adaptation

As humanitarian and development agencies increasingly realise that investments in DRR and climate change adaptation (CCA) are more effective when implemented in synergetic ways, disaster scholars have strived to conceptually merge these previously disconnected arenas (Kelman et al., 2015; Begum et al. 2014). Scholarship on disasters involving slow-onset hazards could serve to make this link even clearer. For example, the Sendai Framework for Disaster Risk Reduction identifies slow-onset hazards as a priority area and makes explicit reference to these in its scope (UN, 2015b). The United Nations Framework Convention on Climate Change also makes provisions for increased attention to climate change-induced slow-onset hazards, which it refers to as slow-onset events (UNFCCC, 2012), noting that there are significant gaps in our understanding of risk reduction for slow-onset hazards. However, while both of these international frameworks include segments on onset speed, they vary significantly in temporal perspective (Kelman, 2015). Achieving a better understanding of disasters involving slow-onset hazards as distinct DRR challenge will therefore be essential, not only in the quest to link CCA to resilience building efforts, but also towards the goal of reducing the global toll of disasters involving slow-onset hazards.

Concluding remarks

Slow-onset, creeping and elusive types of hazard impacts have been subject to disproportionately little research compared to sudden-onset types. This paper aimed to provide a state-of-the-art overview of scholarship on

slow-onset hazards and their synonyms. Looking both at literatures engaging with the concept directly as well as indirectly, this literature survey identified a number of themes. Chief among these is that most publications that mention the term do so only in passing, in the sense as noting that in addition to conventional disasters there are also slow-onset types. The majority of the contributions that directly engage with the concept are concerned with typologisation and conceptualisation, suggesting that research on disasters involving slow-onset hazards is still in its infancy and that there is a great need for more empirical research and theory building. An especially important aspect of this work will involve assessing the degree to which models and frameworks developed in the context of sudden-onset hazard impacts are appropriate for the study and management of slow-onset types.

Further research on disasters involving slow-onset hazards could benefit from employing either a community perspective, political focus or a policy and practice lens. Whereas community perspectives could provide new insight on the way in which vulnerability and resilience dynamics work when impacts manifest slowly. Political perspectives could help us develop better explanations for why slow-onset hazards—despite providing sufficient lead time for precautionary action—often fail to secure proactive response. Further, increased attention to slow-onset hazards and their adverse impacts could further strengthen the integration of CCA and DRR efforts. Lastly, disasters involving slow-onset hazards often fall outside the scope of conventional, preparedness and response-centred disaster management agencies, forcing practitioners, policy makers and researchers alike to identify new forms inter-ministerial collaboration.

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