

# **Overcoming barriers to proactive response in slow-onset disasters**

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## Introduction

Disasters differ markedly in their speed of manifestation, which in turn greatly affects how researchers as well as authorities interpret and respond to them. Some disasters, such as earthquakes or some types of industrial accidents occur in a matter of seconds. Other types of disasters are more gradual or creeping in their manifestation, such as droughts or El Niño. Disaster assessments reveal that elusive and slow-onset disasters affect more people on aggregate than sudden-onset disasters do (UN, 2015a; OCHA, 2011, Marulanda et al. 2010). However, innovations developed by disaster researchers over the last century are mainly based on empirical research carried out in the context of sudden-onset disasters (Staupe-Delgado, 2019; Dynes, 2004). A number of obstacles have therefore emerged that hinder progress on reducing the risk of slow-onset disasters.

In theory, disasters with a gradual and creeping onset are easier to manage than sudden and unexpected ones. Not only do slow-onset disasters provide a more extended period of forewarning, but also a large potential for proactive response, which in turn provides ample time to take action (Matthewman, 2015; OCHA, 2011). However, the unfortunate reality is that hazards with a slow-onset are often ignored, left smouldering in the background, while their impacts gradually build up and strengthen over time - sometimes irreversibly so – until eventually becoming critical emergencies (McConnell, 2003; Glantz, 1994). This is also true for disasters where forecasts provided decision makers with several days advance notice, as was for instance the case when Hurricane Harvey hit South-Eastern Texas in 2017. The Sendai Framework for Disaster Risk Reduction (SFDRR) therefore goes beyond the Hyogo framework in expanding the scope of DRR work to also include slow-onset disasters (UN, 2015b).

While a fair amount of research exists on particular slow-onset disasters, such as droughts, erosion or El Niño, the topic of slowly occurring disasters has generally been overlooked both empirically and conceptually (Matthewman, 2015; Dynes, 2004). Enhancing our understanding of these phenomena, including why they rarely secure proactive response, is therefore central in achieving the ambitious targets set out in the SFDRR.

By focusing on six traits, or lessons associated with slow-onset disasters, this background paper sets out to elaborate on the unique challenges posed by slow-onset disasters with implications for disaster risk reduction (DRR) work. First, however, it is necessary to understand how slow-onset disasters connect to the scope of the SFDRR.

## 1.1. Slow-onset disasters in the Sendai Framework

The combined toll of smaller recurring disasters and slow-onset disasters constitute a notable proportion of the global disaster burden. Slow-onset disasters are explicitly referred to in the scope and purpose of the Sendai Framework, which states that:

The present framework will apply to the risk of small-scale and large-scale, frequent and infrequent, sudden and *slow-onset disasters*, caused by natural or manmade hazards as well as related environmental, technological and biological hazards and risks. It aims to guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors (UN, 2015b: 11; emphasis added).

The United Nations Framework Convention on Climate Change secretariat (UNFCCC) also makes provisions for increased attention to climate change-induced slow-onset hazards, which it refers to as slow-onset events<sup>1</sup> (UNFCCC, 2012), noting that there are significant gaps in our understanding of how to carry out DRR initiatives for these types of hazards. Exploring potential synergies between the SFDRR and the Paris Agreement (UN, 2015c) may in this way prove fruitful in overcoming obstacles to including slow-onset disasters in conventional DRR work. It is however worth noting that while both of these international frameworks include segments on slow-onset disasters, they quite obviously vary significantly in temporal perspective.

Achieving a better understanding of how conventional DRR strategies perform in the context of slow-onset disasters will, therefore, be essential for better integrating slow-onset disasters into national-level DRR planning. Also, researchers and policy makers need to continue exploring synergies between the SFDRR and the work of the UNFCCC so as to increase policy coherence. This, in turn, holds the potential of bridging DRR and CCA work for the benefit of both arenas.

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<sup>1</sup> The UNFCCC identifies “sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification” as slow-onset events of particular relevance to its mandate (UNFCCC, 2012: 3).

## 1.2. Lessons

This paper presents six key points connected to securing proactive response to slow-onset disasters. They are based on insights drawn from a three-year project on how to prepare more effectively for slow-onset disasters (Staupe-Delgado, 2018), which in turn has been supplemented with insights from the overall academic literature on droughts and El Niño warm events. They may therefore be less applicable to perpetual slow-onset processes, such as climate change or antimicrobial resistance. Whereas cyclical slow-onset disasters gradually manifest and later pass, perpetual types require a different set of strategies. The six insights presented in this paper can in short be summarized as:

1. Early warning technologies do not necessarily secure proactive response to slow-onset disasters due to political and practical obstacles in the way of timely action
2. Generic all-hazards DRR strategies, while best practice in the context of sudden-onset disasters, are generally inappropriate for the management of slow-onset disasters
3. Slow-onset disasters often fall outside the mandate of specialized disaster management agencies
4. The geographically dispersed nature of slow-onset disaster impacts reduces their perceived severity and political salience
5. The concept of disaster is often equated with sudden-onset disasters
6. The vast majority of disaster research and theory revolves around sudden-onset disasters, generally the largest and most destructive historical events

Addressing these obstacles head on as the SFDRR process matures will enable both better prescriptive policy recommendations, as well as research that is more sensitive to the different demands introduced by slow-onset disasters. Combined, these six fallacies provide a fresh look on DRR by forcing us to reconsider the way we understand both prevention and response – as well as research.

### **One: Early warning signals are essential, but they must also translate into action**

The degree to which a hazard can be reliably forecast ranges from months to seconds, depending on the nature of the phenomenon in question. While early warning signals for earthquakes typically provide only a few seconds of lead-time, hurricanes, can be predicted days in advance. Still other hazards, such as severe droughts or El Niño warm events, provide even earlier warning signals, with warnings appearing several months prior to their onset

(Glantz, 2015). There are of course also permanent hazard processes – such as climate change – and their manifestation pattern is not of a periodical nature but rather stand out as gradually intensifying societal pressures.

Implicit in discussions of early warning and timely response is often an assumed technological optimism, where the challenge is framed as mostly being technological. Much of the literature on early warning in this way assumes that better prediction and more reliable forms of warning will definitely lead to a timely response. Yet, researchers working on slow-onset disasters such as droughts, famines and environmental change instead observe a tendency of “early warning, late response” (Lautze, Bell, Alinovi and Russo, 2012: 43-49) to creeping disasters. Hence, the relationship between early warning and response is not an automatic one.

Proactive response to slow-onset disasters also has a clear managerial and political side. Care should be taken not to reduce it to a mere technical problem that will be solved by advances in forecasting alone - although these advances play a key part. In my own research on El Niño preparedness and response, I find that both political will and viable strategic options must be present for proactive response to take place (Staupe-Delgado et al. 2018). At the same time, most agencies are continually dealing with a multitude of disasters of different magnitudes, which in turn leaves little room for paying attention to impending, future events. These research findings are consistent with those of other researchers, both those who have focused on slow-onset disasters (Zaidi, 2018; Jaime, 2013; Marulanda, et al. 2010; Shaluf, 2007; Wisner et al. 2004), as well as early warning experts (Costella et al. 2017; Alcántara-Ayala and Oliver-Smith, 2015; Ahrens, 2003; Christoplos et al. 2001). It therefore seems safe to say that translating early warning into proactive response to slow-onset disasters requires that resources are spent not only on ‘extinguishing fires’ (responding to current, acute hazards) but also that attention is devoted to longer time frames.

Because slow-onset disasters are characterised by long lead-times and can be difficult to *notice* at their early stages, they are often described as creeping (McConnell, 2003). Slow-onset disasters can potentially be managed and terminated at their early stages, in which case their impacts would largely be avoided. However, it is not uncommon to postpone response initiatives until more reliable data is available, or even until impacts start to emerge (Staupe-Delgado and Kruke, 2017). This could be a result of the way the ‘disaster phases’ are commonly understood, where response follows impacts, and do not precede them. In fact, several countries have legal obstacles to proactive release of response funding. These laws often stipulate that the release of funds is contingent on an emergency declaration, which in turn is difficult to secure in the absence of destructive impacts (Staupe-Delgado et al. 2018). Hence, rather than seeing preparedness as a reactive stand-by function aimed at securing effective response once adverse impacts are a fact, as in the disaster phase model (mitigation, preparedness, response and recovery (see for example: Coetzee

and van Niekerk, 2012; Neal, 1997), we need to re-conceptualise preparedness for *effective response* (ex-post) more in terms of 'preparedness for *proactive response* (ex-ante).

## **Two: Generic disaster plans are often designed with sudden-onset disasters in mind**

Disaster researchers generally agree that preparedness plans should be based on a generic, all-hazards logic. Further, generic planning should be grounded in principles rather than rigid procedures, as the plan necessarily needs to allow for improvisation as per the response demands of a particular disaster event (Quarantelli, 1997). Because each new contingency will bring about certain elements of novelty and uncertainty, plans need to be sufficiently general so as to be useful in a wide range of situations (Perry and Lindell, 2003). For these reasons, generic plans are considered best practice, as opposed to having separate plans for each hazard type. In reality, the generic plan is often the guiding document, whereas specific contingency plans are drawn up for concrete risks (Alexander, 2016), but still based on and related to the generic overall preparedness plan. This implies that societies should maintain preparedness for specific events that are expected, while also maintaining response capacity for unforeseen contingencies that may arise.

While generic plans are expected to apply to a wide range of risks (hence the tendency to refer to the all-hazards approach), even generic tend to contain elements that make them less suitable for slow-onset disasters. For example, mandated disaster definitions, as well as the stipulated conditions for activating the plan, are frequently based on characteristic most commonly associated with sudden-onset disasters. These include reference to (actual or imminent) abrupt interruptions, urgency, deaths and injuries; all of which are characteristics seldom produced by slow-onset hazards in the short-term. Slow-onset disasters, such as droughts - usually affect livelihoods, nutrition, agricultural production and overall well-being – but generally do not produce the aforementioned impacts in the short term unless an acute famine occurs. Yet, drought is among the natural hazards affecting the largest number of people globally. Should then separate plans be maintained for slow-onset disaster preparedness? Not necessarily.

Integrating slow- and sudden-onset disasters into DRR work is challenging but necessary. Related research on the integration of DRR work and climate change adaptation (CCA) initiatives show that variation in time perspective and terminological inconsistencies hamper integration, but that careful and conscious efforts at integration are viable. Generic disaster plans based on the SFDRR (applying both to sudden- and slow-onset disasters, as per its scope) will

therefore have to be streamlined both in terms of terminology and actors, so as to identify weak points that leave slow-onset disasters out of focus.

### **Three: Specialized disaster management agencies may need broader mandates**

Specialized disaster management agencies, such as civil protection and coordination offices, often have mandates which partially or completely preclude slow-onset disasters from their area of responsibility. Some also focus on droughts, while others leave droughts to agricultural authorities. Similarly, pandemics, antimicrobial resistance, climate change, environmental degradation and other slow-onset disasters are left to health and environmental authorities – leaving the most elusive hazards without a clear area of jurisdiction.

In the scope of the SFDRR it is stated that the framework applies to all disasters. Yet, follow-up on the implementation of the SFDRR is left with specialized disaster management agencies, whose focus is normally limited to conventional disasters. Implementing the SFDRR through a sectoral silo focus will not live up to its ambition. Indeed, much work on integrated DRR notes that integration remains difficult across sectors, but also that it is necessary for comprehensive DRR outcomes (Gall, Nguyen and Cutter, 2015; Gopalakrishnan and Okada, 2007). How can disaster management agencies proceed to broaden their mandates?

While truly integrated approaches to DRR are absolutely necessary to cover the scope of the SFDRR in full, a simpler way forward may perhaps be to focus on alliances. A constellation consisting of a disaster management agencies, coordination centres and an inter-ministerial task force in charge of disaster-related activities within their respective fields of responsibility, may be another way of securing the integrated approach set out in the SFDRR. My own seven-country comparative research (comparing China, Cuba, Ethiopia, Kenya, Panama, The Philippines and Vietnam) on El Niño supports this claim, as countries that set up inter-ministerial task forces in anticipation of the 2015-16 El Niño event were more resilient than those who did not (Staupe-Delgado et al. 2018). As such, a disaster-focused programme in which several agencies meet and are involved may well be an effective way of complimenting the role of specialized disaster agencies, whose mandates are generally focused on conventional risks and disasters.

#### **Four: The relationship between disaster severity and political attention is complex**

Hazards with a slow and incremental onset are prone to procrastinated responses and struggle to compete with sudden, more acute types of disasters for political attention. Slow-onset disasters in this way consistently fail to secure the kind of public and political engagement that highly destructive and sudden disasters often do – but we lack frameworks to explain exactly why and how this situation can be remedied (Staupe-Delgado, 2018; DeLeo, 2015; Matthewman, 2015). Why is it so that potentially catastrophic slow-onset processes (e.g. climate change) attract less comprehensive solutions than, for example, terrorist attacks or industrial accidents?

Researchers observe no unambiguous link between disaster severity, either in terms of economic burden or human toll, and political attention or policy change (Boin et al. 2017; DeLeo, 2015; Rubin, 2015; Birkland, 1998). However, some general patterns emerge from this research. For one, uncontrollable hazards seem to generate more dread than those that can be warned against. Also, disasters in distant places seem to create less political salience, unless a similar event could happen at home and such arguments seem credible. As we can draw from the above, slow-onset disasters are associated with lower political salience than unpredictable and concentrated disasters, such as earthquakes (Birkland, 2016). Exactly what this means for DRR work is unclear if we want to go beyond generalized terms, and will require further research to be adequately answered.

#### **Five: Defining disasters as acute will render slow-onset disasters out of scope**

Disasters are commonly defined in terms of acuteness, urgency or vast destruction. Even though mandated definitions and researcher definitions often differ somewhat, both frequently define their foci in terms of acuteness or equivalent terms. Below follow some academic and agency examples:

Disaster is “an event, concentrated in time and space, in which a society or a relatively self-sufficient subdivision of a society undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfilment of all or some of essential functions of the society is prevented.” (Fritz, 1961: 655)

Disasters “are relatively sudden occasions where because of perceived threats the routines of the collective social units involved are seriously disrupted and where unplanned courses of action have to be undertaken to cope with the crisis.” (Quarantelli, 1991: 2)

A disaster is 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, 2017<sup>2</sup>)

A “disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community’s or society’s ability to cope using its own resources. Though often caused by nature, disasters can have human origins.” (IFRC, 2018<sup>3</sup>)

From the above examples it is clear that definitions have a tendency to explicitly limit the scope to sudden-onset disasters. Two of the most influential definitions in the academic literature on disasters (Fritz as well as Quarantelli) seek to limit the research field to the study of sudden events. Also, the International Federation of Red Cross and Red Crescent Societies (IFRC) define their disaster-related work in terms of sudden, calamitous events. The UNISDR definition, although very broad (and perhaps not specific enough for all practical and research purposes), does not preclude slow-onset disasters. National-level DRR, civil protection and response agencies could benefit from adopting similar definitions, that although perhaps are more specific in light of their respective mandates, should make sure to avoid precluding slow-onset disasters.

## **Six: Disaster research remains heavily focused on sudden-onset disasters**

In the field of disaster research, there is a general trend to refer to slow-onset disasters only as a way of limiting the scope to sudden disasters. While it is true that a great many studies exist on particular slow-onset disasters – such as pandemics, droughts or climate change – these have generally received separate treatment

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<sup>2</sup> UNISDR. 2017. Terminology. <https://www.unisdr.org/we/inform/terminology>

<sup>3</sup> IFRC. 2018. What is a Disaster? <https://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/what-is-a-disaster/>

and have in this way not been subject to comparative and cross-cutting analysis, as analytical attention has been fixed on lower levels of abstraction. Hence, slow-onset disasters are identified as a distinct type by a number of researchers, but for whom the focus has not been to explore their common challenges further. As such, ‘disaster theory’ or ‘disaster scholarship’ remains heavily focused on models designed after studying sudden-onset disasters.

The concept of onset has not been subject to much debate in the disaster literature and disasters vary greatly in onset duration. Some barely have an onset at all, such as earthquakes or industrial explosions. The Oxford Dictionary defines onset as the “beginning of something, especially something unpleasant” (Oxford Dictionaries, 2018<sup>4</sup>). In DRR terms, this “beginning of something” naturally refers to the beginning of disaster, or rather the beginning of adverse impacts. Further, it signals that the hazardous event is imminent - that the wheels are already in motion – but also that there is still time to take precautionary action so as to cushion the impacts of the impending event. The onset is therefore a decisive and crucial moment, or what is commonly referred to as a moment of crisis or a state of emergency. It is typically at this stage that preparedness measures are activated as a way of minimizing impacts where prevention measures are at risk of proving insufficient. Naturally, for slow-onset disasters preparedness has to be understood differently than for sudden-onset disasters, as measures such as evacuation become less viable. Instead, preparedness for, for example drought, should be directed at protecting livelihoods.

Onset can also be seen in relation to forecasting. The relationship between forecasting and onset can seem slightly unclear. The onset of a hurricane, for example, is not necessarily when it is forecast but when it starts making landfall. It is therefore not a slow-onset disaster even though it may have been forecast days in advance. Similarly, droughts are not slow-onset because they may be forecast in advance, but because their potentially adverse impacts manifest gradually. The impacts of slow-onset disasters, in turn, largely depends on policy and DRR measures initiated. Nevertheless, government should consider supporting more global- and national-level research on slow-onset disasters to expand our current knowledge base. It will also be essential that policy makers and practitioners disseminate best practices to researchers through relevant fora, such as the Global Platform for Disaster Risk Reduction (GPDRR).

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<sup>4</sup> Oxford Dictionaries. 2018. Definition of onset. <https://en.oxforddictionaries.com/definition/onset>

There are many reasons for studying slow- and sudden onset disasters as separate categories – and many reasons not to draw up such a schism. Recent developments aimed at breaking down the rather categorical contributions of the past represent important processes of mainstreaming the field of disaster studies. As Quarantelli (1988) points out, emergency planning ought to be generic and based on an all-hazards logic, as most disasters pose similar management challenges. Still, we can scarcely escape the fact that slow-onset hazards do pose challenges that differ from those of most sudden-onset hazards (Twigg, 2004), and that most theory-building efforts in disaster studies are implicitly based on an understanding that disasters are sudden-onset events. Further, the study of slow-onset hazards as an overall category assumes that specific slow-onset hazards, such as droughts, El Niño events or erosion, share managerial and planning challenges and are in this way fruitful to study comparatively. While there have been systematic studies and resulting theoretical innovations within the drought and famine research communities (Wilhite and Glantz, 1985; Sen, 1981), among others, these works have generally not aimed at abstracting their findings to the overall study of slow-onset hazard processes (Staupe-Delgado, 2019). The study of sudden-onset disaster events on the other hand, have been concerned with producing general theories of disaster for nearly a century. Hence, there are good reasons for focusing particularly on slow-onset hazards so as to not contribute to their continued neglect in the disaster research and policy community.

## **Concluding remarks**

Disaster researchers and humanitarian practitioners generally recognize that slow-onset disasters pose problems that require a different type of response than those commonly initiated in the context of sudden-onset events (OCHA, 2011; Twigg, 2004). The general tendency has been to study slow-onset disasters in isolation, such as research on droughts, erosion and sea-level rise. However, by studying their commonalities under the concept of slow-onset disasters, seen as an overall category for these kinds of hazards, lessons may be drawn that are also of relevance to similar processes (e.g. lessons from drought research that may be of relevance to policy and research on erosion and sea-level rise). This implies that while the specific hazards dynamics vary greatly between these hazard agents as well as different geographies of vulnerability, some challenges are likely to be common among slow-onset phenomena, making their joint study a worthwhile undertaking.

How long an onset obviously depends on the hazard in question. In truth, all disasters are slow-onset if we take historical vulnerability and processes that perpetuate disaster risk into account – or as James Lewis

famously stated: “all disasters are slow onset when realistically and locally related to conditions of susceptibility” (Lewis, 1988: 4, as cited in Kelman, 2008<sup>5</sup>). Strictly speaking, therefore, we ought to speak only of slow-onset hazards, at least if we want to maintain a coherent way of thinking about disaster causality! In a more pragmatic tone, onsets vary from seconds, days, months or decades. For example, while floods typically have an onset lasting anything from a few minutes (e.g. flash floods or storm surges) to a few weeks, the El Niño-Southern Oscillation (ENSO) has an onset of well over a year, with some exceptions. There are also hazards that have no clear termination point and these generally fall outside the scope of DRR policy as it is typically understood, such as climate change and antimicrobial resistance. Perhaps some of the major DRR tools and logics need to be revisited to make them more relevant for managing the risk of slow-onset disasters?

The disaster management cycle (or phases) represents one of the most influential conceptual innovations in the field of DRR. Not only has the phase logic been essential in shifting the focus towards mitigation and preparedness, but it has also proved invaluable in connecting previously disconnected practices – such as risk analysis, contingency planning and response. While the disaster management cycle represents a major, unifying policy framework that has served as a backbone in DRR practice, it nevertheless assumes a linear normal – impact – aftermath logic. This logic may be less suitable in the context of slow-onset disasters, whose gradual manifestation complicates the trajectory not only terms of defining when the impact occurs but also because it is difficult to define the post-disaster phase – especially if impacts are perpetual or dissipate gradually. Therefore, policy makers, practitioners and researchers should work together to reshape DRR practice so as to make it more relevant for the management of slow-onset disasters. This, in turn, will facilitate efforts to identify complementarities between climate change adaptation efforts and DRR work, including discovering synergies between the implementation of the SFDRR and the Paris Agreement.

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<sup>5</sup> Kelman, I. 2008. Disaster Lexicon. <http://www.ilankelman.org/miscellany/DisasterLexicon.doc>

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