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Disasters are not natural

‘A hazardous event that causes unacceptably large numbers of fatalities and/or overwhelming property damage is a **natural disaster**’ (definition in ‘resources’ from awarding body A Level Scheme of Work, emphasis theirs)

This article is an argument for avoiding the term ‘natural disaster’ in the teaching of geography. Every year, tens of thousands of deaths are linked to natural hazards (Roser and Ritchie 2018), which are often labelled as ‘natural disasters’, and the poor and marginalised are disproportionately affected in these disasters. In this paper we argue that the term ‘natural disaster’ unhelpfully obscures the socially constructed nature of disasters. Hazards, including from seismic, meteorological, hydrological, and other features, might properly be referred to as ‘natural’ because of the way in which their occurrence appears to be independent of human interference. At times, unfortunately, humans are caught up in these hazards with sometimes fatal consequences. It is common – particularly in school geography, but also more widely – for the terms ‘natural hazard’ and ‘disaster’ to be combined and used to name these events ‘natural disasters’. However, we argue that natural disasters do not really exist, because in almost every instance there are fundamental human-induced factors that turn natural hazards into disasters. Implications of the term ‘natural disaster’ include absolution of responsibility and a tendency towards fatalism (Bosher 2008). We argue instead for an active approach towards understanding natural hazards and human relationships with them that is future-oriented, seeking solutions to reduce inequalities and prevent natural hazards leading to disasters.

‘Natural disasters’ and school geography

While we asserted that the terminology of ‘natural disasters’ is commonly used in school geography, analysis of National Curriculum and Subject Content materials reveals the opposite: the term is not used in any of the Department for Education’s (DfE) National Curriculum (NC) materials (for England) at Key Stages 1 and 2 or 3. Nor is the term used in the DfE Subject Content documents at either GCSE or A Level. Similarly, the current awarding body examination specifications (drawing on these Subject Content documents) do not use the term at all. It is when we move from these ‘formal representations of school

geography' (Puttick, 2015, p.29); from the curriculum as *intention* and closer to the curriculum as *reality* (Stenhouse, 1975), that the use of the term increases.

The term 'natural disaster' has been used occasionally in *Teaching Geography* (TG). In the last 20 years, four articles and one editorial in TG have used the term. We agree with the language of the noted editorial but then also want to push the argument one step further. Biddulph introduces the (2011) issue on sustainability by noting that 'One website described 2010 as the 'top year for natural disasters' and while most naturally occurring events are not disasters, 2010 did provide us with some stark reminders of the power of nature: The earthquake in Haiti killed thousands and left up to 1 million homeless...' (p.5). Extending this reasoning, we argue that not only is it the case that 'most naturally occurring events are not disasters', the logic of this connection should also be revised to make a clear distinction between 'natural events' and 'disasters', the most immediate implication of which is that the term 'natural disaster' is avoided. It was not the earthquake that left people homeless, but instead it was because of the poor construction, inefficiencies of government, and corruption.

Moving a further step away from formal representations of school geography into the schemes of work provided by awarding bodies, and from them into the curriculum resources they cite, recommend and link to, use of 'natural disasters' explodes. One example is summarised in Table 1, which presents only the resources linked to by one awarding body scheme of work. The extensive use from this one example illustrates the prevalence of the term in curriculum resources.

Resources	Definition or use of 'natural disaster'
OAS (Organization of American States)	'A hazardous event that causes unacceptably large numbers of fatalities and/or overwhelming property damage is a natural disaster. In areas where there are no human interests, natural phenomena do not constitute hazards nor do they result in disasters.'
National Graphical	'feature length documentary on the world's "top 10" natural disasters'
FEMA (Federal Emergency)	'Natural Disasters: Ask: Have you ever heard of a natural disaster? Do you know what it means? Help students to understand that a natural disaster is an emergency that happens in nature, sometimes caused by weather or

Management Agency)	climate, which can harm us or our surroundings. Ask students if they can name a type of natural disaster, and why they would consider it a disaster.'
IFRC (International Federation of Red Cross and Red Crescent Societies)	'Moroni/Geneva, 26 September 2017—Thousands of lives in the Union of Comoros, Madagascar, Mauritius and Seychelles remain at risk due to the region's increasing vulnerability to natural disasters, including cyclones, floods, earthquakes and tsunamis.'
RGS (Royal Geographical Society)	'Natural hazards such as earthquakes occur around the world and when combined with people create natural disasters.'
World Bank	'Over the past 30 years, more than 2.5 million people and almost \$4 trillion have been lost to natural disasters, with global losses quadrupling from \$50 billion a year in the 1980s to \$200 billion in the last decade.' and 'The Bank's Unbreakable report finds that natural disasters have had large and long-lasting impacts on poverty.'
TEDx talk	'After a natural disaster, there's only a tiny window before the world turns its sympathy (and its donations) elsewhere...'

Table 1 Awarding Body A Level SoW Resources

Hazards may be natural: disasters are not

The FEMA teaching resources prompts a question: 'Ask students if they can name a type of natural disaster, and why they would consider it a disaster'. Our argument is for teachers to push this a step further: why do we consider it 'natural'? A disaster does not happen unless people and cities are vulnerable due to marginalisation, discrimination, and inequitable access to resources, knowledge and support. These vulnerabilities are further – intentionally or unintentionally – enhanced by deforestation, rapid urbanisation, environmental degradation, and climate change. Moreover, vulnerabilities are too often enhanced not because the information about dealing with hazards does not exist, but because decision makers (and those responsible for the development of the built environment) do not use this information appropriately (or at all). Mileti (1999) pointed out that many disasters are not unexpected but stem from the predictable result of interactions between the physical environment, the built environment and the communities that experience them. This

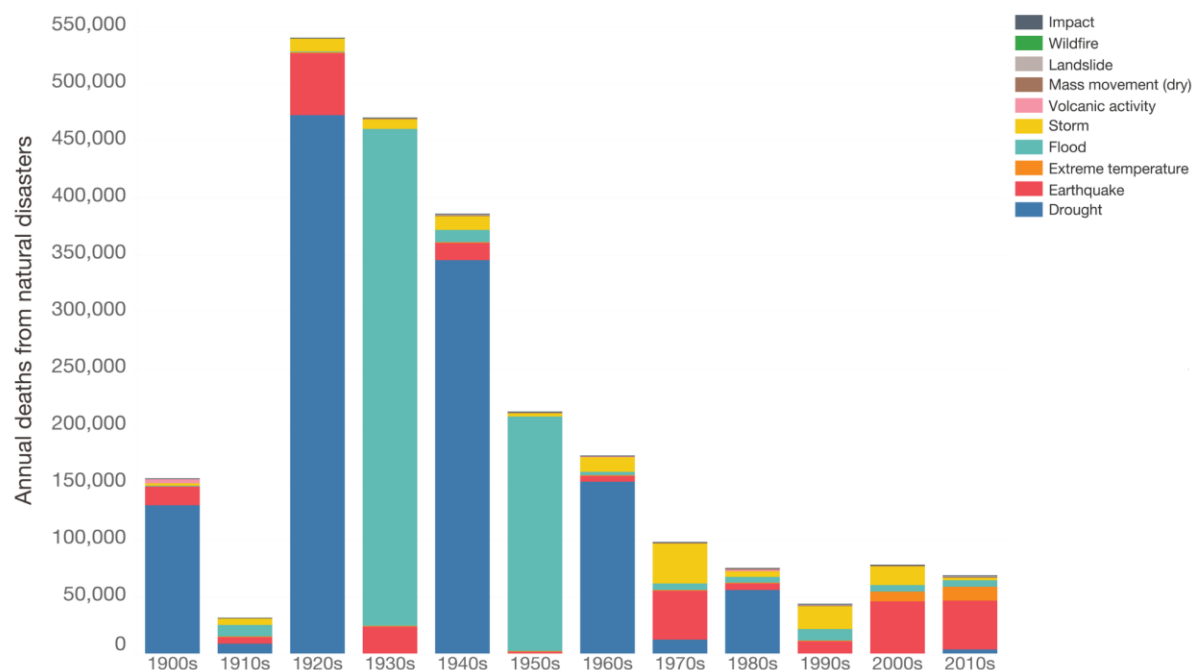
principle is well established. Over 40 years ago, O’Keefe et al. (1976) recognised that the term ‘natural disaster’ was a misnomer, and questioned how ‘natural’ so called ‘natural disasters’ were. They highlighted that many disasters result from the combination of natural hazards and social and human vulnerability. This important point was reiterated by Boshier (2008) who suggests that labelling a disaster as ‘natural’ effectively absolves many stakeholders from blame. Nevertheless, the term continues to be widely used. For example, Our World in Data present ‘Global annual deaths from natural disasters’ (Figure 1).

Global annual deaths from natural disasters, by decade



Absolute number of global deaths from natural disasters, per year.

This is given as the annual average per decade (by decade 1900s to 2000s; and then six years from 2010-2015).



Source: EMDAT (2017): OFDA/CRED International Disaster Database, Université catholique de Louvain – Brussels – Belgium. The data visualization is available at [OurWorldinData.org](https://ourworldindata.org). There you find research and more visualizations on this topic.

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Figure 1 Available at: <https://ourworldindata.org/wp-content/uploads/2018/04/Global-annual-absolute-deaths-from-natural-disasters-01.png>

One of the hazards in Figure 1 – Earthquakes – is attributed in this graph with causing the highest number of deaths over the past twenty years. The RGS website linked through the Scheme of Work above discusses two examples of earthquakes (Table 2) that illustrate the argument that there is nothing ‘natural’ about these disasters (despite using the term in the title). *The impact of natural disasters*

(<https://blog.geographydirections.com/2010/03/03/the-impact-of-natural-disasters/>)

describes the earthquakes in these terms:

The earthquake measuring 8.8 on the Richter scale that struck Chile last weekend affected two million people. It was more than 500 times more powerful than the earthquake that devastated Haiti a few weeks earlier, yet the human toll and infrastructural damage was on a much lesser scale. Chile has a long history of earthquakes and has implemented a range of measures to cope with the hazard... This is, of course, quite different to Haiti which had no internal capacity to deal with the recent disaster and will be entirely dependent on outside help for many years to come.

	Haiti 2010	Chile 2010
Magnitude	7.0 Mw	8.8 Mw
Deaths	230,000	525

Table 2 Haiti and Chile Earthquakes 2010

The impacts/deaths between these two earthquakes are stark. Despite being more than 500 times more powerful, the earthquake in Chile caused far less harm. This was mainly due to human-induced/manmade factors, including; lack of building codes/enforcement and high proportion of informal/unregulated development in Haiti, compared to the highly regulated and well enforced regulations for development in Chile. The major differences in the human development index in each country was a key factor (Haiti: 0.493. Chile: 0.847. UNDP 2016). In some ways, this is not new information for school geographers. The shift we are arguing for is in the language used to described these events: let us not call them ‘natural disasters’ because there is nothing ‘natural’ about a less powerful earthquake leading to greater numbers of fatalities and long-term infrastructural and socio-economic damage. As an aside, The ‘Richter scale’ is also no longer used by seismologists (but is still often erroneously used in the media). Boshier and Chmutina (2017) state that the magnitude of an earthquake is conventionally reported on the Moment Magnitude Scale (Mw, often erroneously reported as the now superseded ‘Richter scale’), whereas the felt magnitude is reported using the modified Mercalli intensity scale (intensity II–XII).

Conclusions

The public at large will never engage with the complex root causes of disasters if the “natural” aspect is highlighted as predominant. In order to contribute to this shift in thinking and discourse, it is important that we educate the public early on. We must push back against blaming nature and take responsibility for disaster risk creation. Labelling disasters

as “natural” enables those who create disaster risks by accepting poor urban planning, increasing socio-economic inequalities, non-existent or poorly regulated policies, and lack of proactive adaptation and mitigation to avoid detection. School geography provides an ideal opportunity, explaining clearly how a hazard may become a disaster, and critically examining the language we use: a school geography that is ‘powerful’ in shifting broader discourses and working, even in these small ways, towards fairer and more resilient environments for all.

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