

Natural Hazards and Disaster Risk Reduction Policies

Loredana Antronico - Fausto Marincioni
Editors





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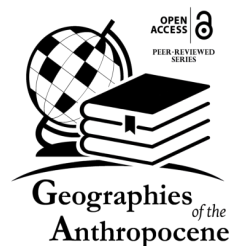
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Fausto Marincioni
Editors

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Cover: A woman shovels mud from her driveway in the aftermath of the October 2010 debris flow that affected the Province of Vibo Valentia (Calabria, southern Italy).

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11. Information instead of fatalism: a proposal of a strategy to inform on disasters

Jon Cadierno Gutierrez¹, Justino Losada Gómez²

Abstract

During the summer-fall of 2017 numerous disasters occurred. This period stood out for concentrating a large number of tragic episodes such as hurricanes Harvey, Irma and José, the earthquake in Mexico City or the major fires in Spain or California. Each time most of mainstream mass media regularly repeated the popular linguistic formulae that refer to these phenomena as “natural disasters”. However, even if it is usual to find this formula, the adjective “natural” is far from correct in regard to a series of motivations this work tries to lie on the table. All this in order to clarify and simplify the terminology to be used for the information from generalist mass media.

The main objectives are related to understand that employing the term disaster means to talk about risk and to realise that the real conditions that favor the occurrence of a catastrophe are not “natural”, but “human”. Another key point is to keep digging for the concept of risk, so that it can be understood both in probabilistic terms and as a social construction. The last goal refers to the need to prevent fatalist behaviors and to focus on lowering vulnerabilities and fostering people’s inherent capacities.

Keywords: mass-media, hazards, vulnerability, information, disaster

1. Introduction

The term *natural disaster* is often used as a colloquial formulae to refer to the occurrence of an earthquake, a tsunami, a hurricane, flood or fire (Sánchez *et al.*, 2014). To the term “disaster”, then, it is commonly added

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et al., 2014). To the term “disaster”, then, it is commonly added the adjective “natural” to emphasize the type of threat associated to the development of the catastrophe, as if it were intrinsic to nature itself. This is done repeating the linguistic formulas that are popularly spread, without correctly knowing the whole and true meaning of the term.

That is why we wonder in this paper, what a disaster is and why it would not be right to talk about ‘Natural disasters’.

2. Disaster, risk and threat

Although the abundance of terms about these concepts becomes overwhelming, there must be a place for a series of basic principles to understand the complicated relationship between environment and the human being. Firstly, it should be noted that this relationship is not symmetric, as environment has not the ability and consciousness to react as it does not think, unlike human beings. Thus, understanding that environment comprises different natural processes in different scales becomes crucial to figure out how the human behavior takes the so-called ‘disasters’ as positive or negative experiences.

Taking into account the definition of the United Nations Office for the Reduction of Disaster Risk (UNISDR, 2009), a disaster would be *an interruption in the operation of a society that causes human losses and material, economic and social impacts that exceed the capacity of the affected society to deal with the situation by means of the use of their own resources*. In other words, a disturbance that affects the normal functioning of the society, which in many cases is attributed to environmental reasons.

As Colombian specialists Gustavo Wilches-Chaux (1989) and Omar Darío Cardona (1993) indicate, the caused changes, which tend to occur suddenly, develop transformations that are difficult to deal with, due to the lack of flexibility or adaptability of the affected social system. In the same terms, the concept of disaster is also defined as the materialization of risk in a certain space where people and goods are in danger. So, the concept of risk arises as a crucial term when defining what a disaster is and therefore, why it is not natural (Cardona, 1993).

The aforementioned UNISDR also points to the meaning of risk as the combination of the frequency of the occurrence of a negative event for the human being with its negative consequences in regard of lives, health, means of sustenance, goods and services, and how this negative effects could happen in a particular society. Regarding that matter, speaking of frequency is not trivial, as it indicates the repetition of the occurrence of a phenomenon that

involves danger. Therefore, knowing where frequency of negative events is higher and how this affects places where more people are in danger due to potential hazards, allows for arguing in favour of anthropogenic responsibility; thus, from this perspective, speaking of Natural disasters would not be correct.

Going further and indicating not only to disasters but to their triggering factors, a new concept emerges that also takes part of the meaning of risk: the threat. Threat can be defined as a phenomenon, substance, human activity or dangerous condition that can cause death, injury or other damage or impacts to health, property, economy or the environment, among others. It was considered until recent times as the physical-natural element that triggered the disaster. For Cardona (1993), the concept still shows a technocratic approach to the knowledge of threats, without paying attention to the fact that, in many cases, the real conditions that favor occurrence of catastrophes are not natural elements.

We are talking then about the physical and social vulnerability, that is, all those characteristics and circumstances of a system that make it susceptible to the harmful effects of a threat.

As an example, when a building located in the alluvial plain of a river is damaged due to a flood, the real condition of the disaster is not the flood itself, but the exposure of the house to such phenomenon. When a landslide occurs on a destabilized hillside where a slum is located, although the trigger can be an intense precipitation, the real cause is the precariousness of the settlement and its associated social vulnerability. Such a social vulnerability, in addition, is also translated into the lack of economic resources and its subsequent marginalization; moreover, it is totally influenced by the implementation of hypothetical political solutions that starts funding a correct risk management (UNISDR, 2009).

In spite of all the aforementioned aspects, it is equally important to point out that these conditions can be reduced when facing a disaster, as having a threat generates knowledge and awareness of anticipation. Therefore mitigating becomes very possible to avoid damages before the catastrophe as well as offering solutions.

For instance, Harvey and Irma Hurricanes have caused disasters in the Caribbean, but as this region is often affected by such phenomena, they are not extraordinary for populations. Then, in regard to the learning and adaptation, their occurrence has allowed the implementation of large measures of evacuation, mainly in Cuba and Florida. On the other hand, in poorer countries like Antigua-Barbuda or Haiti, the lack of resources for the implementation of evacuation measures did not permit to alleviate the damages.

3. Disasters are not natural

According to geographer Allan Lavell (2005), giving an accurate and correct definition of the term disaster goes beyond its own semantic approach, as it constitutes a key point for providing an appropriate background. For this reason, the first step towards a correct conceptualization evolves into the affirmation that disasters are an eminently social fact.

In 1993 the Social Studies Network on Disaster Prevention in Latin America (La Red) published the report 'Disasters are not natural', in which it was argued that in order to manage a possible catastrophe it was necessary to disprove a series of misinterpretations, such as thinking that disasters are a consequence of uncontrollable natural, or even supernatural forces.

As the main approach to the term disaster continues considering them as extraordinary phenomena away from any relationship between human being and nature, this attitude fosters fatalistic visions that lead to resignation, conformism and immobility. Just as the concept of risk is a social construction, a disaster is considered only when it impacts on a territory with a vulnerable social structure, generating negative repercussions in economic and environmental terms, at the same time. Therefore, if there are not such effects, it would be an event that is just part of the natural processes and cycles (for example, a hurricane in the middle of the ocean or a snow avalanche on uninhabited areas). That is why a disaster can not be defined Natural. So what happens then?

The awareness of anticipation and the flexibility of the society when facing a disaster are crucial factors to take into account when overcoming the damage generated by a catastrophe. To that effect, social resilience should be indicated as an opportunity to achieve risk reduction and community development. Indeed, the aforementioned UNISDR defines social resilience as the capacity to resist, absorb, adapt and recover from the exposition of a threat in a timely and effective manner.

Researchers like Wilson (2012) and Manyena (2014) go a little further, as they point out that resilience not only can be a simple reactive capacity of the population, but also a possible adaptation that involves constant learning of processes and responsibilities. Such an adaptation is given by means of synergies that keep society alert before disasters, planning all the necessary measures to mitigate their damages, before, during and after they happen.

On the other hand, Cardona explains that there are cultural features regarding the development level and organization that influence individual and collective perception of risk, favouring or impeding its prevention and mitigation. In similar terms, the human being tends to see risk only through

its materialization in disaster, showing a great limitation that can be overcome with education programs on risk prevention. For all these reasons, we must not forget that, beyond the probability that a specific threat arises in a system with a certain degree of vulnerability, risk is a social construction.

In addition, also the emotional facets have to be taken into account as they are necessary dimensions for integral comprehensive understanding of the territory. This is essential for understanding that natural processes, however intense they are, are not a threat per se. Indeed the real concept of a natural threat acquires meaning only when it is linked to a vulnerable and exposed community.

Therefore, it is necessary to widen the purely technocratic and physical approaches to the term “disaster” supplementing them with more in-depth studies on vulnerabilities, capabilities and opportunities of a community or a territory. To reach this point, the contribution of the social sciences becomes essential to understand that if a disaster happens it does not have a natural background, but if it were, then it would not be a disaster.

4. A glimpse of news

The mass media, together with social and cultural learnings and other communication processes, have a strong influence on risk perception. Indeed, risk perception is more shaped by communication than by the personal experiences of individuals (Renn, 2008). As Wachinger *et al.* (2013) point, developing a sense of trust in experts and authorities becomes also key to defining risk perception, so new ways of communication about adverse phenomenon are needed in order to promote a change in the perception of natural hazards, especially if such a change could stop the evaluation of natural events as the main cause of disasters.

As an example, since 1st of December 2017, the Spanish national weather agency known as Agencia Estatal de Meteorología (AEMET), together with MétéoFrance (France) and IMPA (Portugal) meteorological agencies, are naming the deepest depressions that can produce strong winds, intense precipitations and adverse coastal phenomena. Since then, several named depressions, that have received a wide and alarmist media coverage, have hit different areas of these three countries.

The initiative of naming atmospheric depressions is not new; the hurricanes that hit America every year have been given names for centuries (at the beginning, they were associated with the calendar of saints' days), and the Free University of Berlin has been baptising middle latitude depressions

and high pressure areas for ages. Nevertheless, it has been an initiative going on since 2015 in the United Kingdom and Ireland which has created a bigger interest. It has been proved that when citizens receive more detailed information about a low pressure area or about any type of recommendations, they pay more attention to the hazard, achieving a better identification of the phenomenon, then a more effective risk communication happens (AEMET, 2017). Moreover, it should be pointed out that considering the objective of giving less importance to hazards because of an excessive alarmism by the mass media, the three weather agencies decided naming just those depressions that have a bigger potential to cause harm on people and their goods.

Nevertheless, agencies not always agree about the perception of risk after naming atmospheric depressions. Caribbean Hurricanes like Leslie, which have recently hit Portugal, can also reach this part of Europe every once in a while, and it seems that an even warmer Atlantic Ocean will foster the arrival of more Hurricanes in the next years (New Scientist, 2017). This situation adds new variables to the risk equation which need to be properly communicated, but this has not been the case in Spain, where some media have overwhelmed citizens with incorrect and sometimes exaggerated information. In addition, the Spanish and Portuguese weather agencies were not well coordinated; while Portugal activated the red alert for the northern part of the country (La Vanguardia, 2018), which shares borders with the Spanish region of Galicia, Spanish AEMET agency did not do the same for Galicia, thus showing the importance of good coordination between these important risk communicators.

Said that, it is interesting to underline again that people pay a bigger attention to a hazard when they can actually identify it in a more direct way, in this case through a human name; that is, when it is understood that what causes harm has human features.

Another similar example regarding the responsibility of the media on risk perception has happened in the Great Rift Valley. In this area due to heavy rainfalls, sediments were removed leaving uncovered one of the faults. Last April 2018, the mass media talked about the development of a crack (so defined by the media) in the Great Rift Valley. The “enormous crack” was up to 15 meters deep in some places, 20 meters across and various kilometers long, especially around the Narok region in Kenya (El Periódico, 2018). Together with the publication of news about this phenomenon, it stands out the big amount of headlines about the “crack”, the photographic reports and the number of headlines that are referred to the progressive opening of the

rifting process in Eastern Africa. Equally, it has been pointed out that probably the fault could have been uncovered when part of the lightest materials that filled it were washed up by the last floods in Kenya.

This way, it has been analyzed how the mass media distort the geological time by accelerating it when it does not fit the human scale. Moreover, the news expounded on the phenomenon by mentioning the “separation of Africa” as an imminent and astounding process, with the only purpose of attracting readers/followers to the headlines. Thus, it can be worked out that the market laws do not just influence the decision making about risk perception, they also introduce noise in the information campaigns. Because of that, and in our opinion, the media must complement the official information through good journalistic practices that contribute to clarify the general information and to reinforce trustable local knowledge.

Regarding the last point, it is also important to note that sometimes taking the necessary measures like evacuating a city are not the best answer for an emergency. When Hurricane Harvey was about to hit Houston, local and county officials decided not to follow the recommendations for massive evacuations coming from the Texas Governor. In order to avoid a bigger catastrophe originated by putting 2.3 million people on the road just a few hours before the Hurricane's arrival, they decided the best option for the residents was to shelter and stay in place, appealing to the local experience and knowledge by posting tweets like “Local leaders know best”. Though quite polemic, the disaster management was successful in terms of reduction of personal damages (The Washington Post, 2017).

Another important factor is the expected hurricane risk in relation to the capacity of meteorological forecast about their strength and trajectory. In regard to this point, Florence, the first big storm of the current hurricane season in the Atlantic Ocean, was expected to be much stronger than what it really was. After reaching Category 4 in the beginning of September, Governors of North Carolina, South Carolina, Virginia, Maryland and Washington D.C. declared the state of emergency due to an imminent impact. Besides, mandatory evacuation orders were given around September 10 for the coastal communities in the Carolinas and Virginia. Apart from that, media coverage on Florence arrival was widespread, even in inappropriate and unethical manners by means of the exaggeration of its strength by a reporter of *The Weather Channel* (The Telegraph, 2018). Finally, Florence weakened and hit North Carolina on September 14 as a Category 1 hurricane, getting everyone's attention. This fact made thousands of residents decide to stay put

ignoring the mandatory evacuation. After all, many people regretted that decision when the storm flooded several rivers and their banks (The Washington Post, 2018). This matter shows how people think about lower hurricane Categories as an acceptable risk, when in fact they are exposing their lives to an unexpected threat as communication and warnings were not clear at all.

On the other hand, hurricane Michael generated a smaller risk expectation as it hit Florida, where hurricanes are more usual. Moreover, there was a sense of exhaustion and devastation after all the confusion regarding threat and Category about Florence. This helped to generate an apparently smaller sense of risk before a Category 4 hurricane that hit the northern territories of the Florida peninsula leaving at least 45 people killed around its trajectory (USA Today, 2018).

From a closer point of view, the storm sequence that affected the Eastern parts of Majorca island (Spain), and activated the local ravines that flooded Sant Llorenç des Cardassar has also been controversial. The death of 12 people because of the flood has reopened the discussion between the reliability of the forecast of a very local phenomenon and the lack of urban planning related to flood risk. Even so, data shows that the volume of flow was much bigger than expected for return periods of 100 and 500 years in a town that has coexisted with ravines from the 16th Century. Thus, the problem might not be the lack of urban planning, but the lack of a coordinated early warning system with a clear protocol designed for citizens, which contains the precise instructions about what to do during similar situations (El País, 2018).

5. Informative strategies

Just like Major and Atwood (2004) point out, the media have become the main general information source in terms of risk perception. This aspect is fundamental in order to understand the risk perception and the risk itself depending on the level of importance given by the media (Critcher, 2006). Such level of importance affects the cognitive aspects that help valuing the issues from a personal point of view. This means the humanization and the rise of a certain risk, and thus, the perception of that risk as a human answer. This feature is crucial in order to face complex risks that are not directly perceived or that have long term effects. Thus, the media have a very relevant role when it is necessary to complement the official information (Williams,

et al., 2012).

5.1. The attitude facing information

According to Sánchez *et al.* (2014), the journalistic information about disasters should not be alarmist. Anyway, the relation between distinguishing data related to unstable natural phenomena and the emotional answer that is produced when visualizing it has always been complex. In fact, it has generally been easier to find ‘catastrophism’ from a selfish and exaggerated perspective in relation to any hint of reality shown in a picture of a flooded city, even though the idea of a single transmission of information about disasters generating alarmism seems to be predominant (Lozano, 2009).

Either because of the attraction of pictures or generally because they have a bigger media coverage, it seems that the information about disasters awakens a bigger interest amongst the ones that deal with this kind of information. But it should be taken into account that this does not mean that the receivers correctly process the information for the creation of knowledge that can be shared. Indeed, the frequent exhibition of such pictures more probably could stop surprising the receivers. That is to say, the real possibilities of attending risks decrease due to their indifferent answer to the media saturation (Sánchez *et al.*, 2014).

For this, we should talk about the responsible role played by the media, as they foster upsetting viewpoints among the population. Actually, we are used to receiving big amounts of information related to plenty of unstable situations that may collapse our cognitive capacities, and this do not let us to process all the data in a correct way (Anderson and Woodrow, 1989).

It should also be indicated that this general confusion cannot be overcome only if people understand what is going on with abnormal phenomena, as this problem also affects to the ones that prepare and send information (journalists, news readers, editors), when they narrate what has happened in order to try to approach (rather than explain) the big public (Wilson, 2008).

On the other hand, the effect the news has on risk perception should be considered too, as in the majority of cases they just show the critical points of a disasters. This is due to the fact that the news tends to refer exclusively to the phenomena that break the human events and they focus uniquely on some of their main characteristics like latest news, novelty, truthfulness, regularity

and journalistic interest (Fontcuberta, 2003). On the contrary the generative processes of a natural phenomenon are much more complex and longer (Lozano *et al.*, 2012).

But equally, from the reporter's point of view, it must be pointed out that the less there is information about a disaster, the more there is an increasing of the journalistic interest, so that any kind of data is hot news and any sign or evidence becomes a headline. Nevertheless, once there are more complete, contrasted and reliable information as time goes by, the catastrophe starts losing interest as hot news and it will not be part of the front pages or headlines, being thus published in much less highlighted places (Sánchez *et al.*, 2014).

5.2. Towards an informative proposal

The previously indicated aspects also need a natural contextualization at present. Today, risk perception is bigger than in the past, not just because we can access to more information than before, as the media connection level is much higher, but because present societies happen to be more fragile. Then, in order to reduce such a general fragility and to reach an agreement about the information under a market regime, we propose a series of points that we believe are fundamental for the development of information about natural phenomena.

The first goal is related to emphasize that employing the term Disaster means to talk about risk. Risk is defined according to UNISDR and involves a conjugation of threats, mostly considered as the physical-natural elements that trigger the disasters, and physical and social vulnerabilities, explained as the inherent characteristics of a system that make it susceptible to receiving damage. Therefore, although it is true that these factors are designated as a dangerous condition that can cause various losses, it could be indicated that the real conditions that favor the occurrence of a catastrophe are not natural, but human. To achieve this point, mass media not only might be truthful, but also responsible of offering information in a simple way by means of communication processes. According to communication theory (McQuail, 1985), the abstract representation of risk, the information about a case, and the social construction of real events must be linked to provide an accurate and trustable source of knowledge about an specific event. In a previous study Blanchard-Boehm (1993) pointed to the validity of different and simultaneous communication strategies based in printed media. Here a

synthetic and accurate approach to inform from official sources was the most reliable way to make people understand about the importance of a warning.

Regarding the second goal, the integration of the probabilistic terms of the concept of hazard is also proposed. To achieve this, a complete understanding of the spatial and temporal frequency of the occurrence of a threat, as well as the degree of exposure and vulnerability of a community are paired. Therefore, the positivist integration of the concept from a global perspective requires that, in addition to a probability, risk must be understood as a social construction whose materialization results in disasters. This fact implies that those who receive all the information might be in good disposition to know, understand facts and share knowledge regarding natural threats. This is useful for explaining all the precedent points before reaching the disaster, in order to remodel the current social construction about natural threats. In relation to this point, and apart from the official information provided by the authorities, a further layer of information can be provided by citizens using social media as a network to gather valuable data about the development of an event in real time. As Fraustino *et al.* (2012) and Williams *et al.*, (2012) point, this fact becomes significant for people, as it can contribute to raise awareness of natural hazards by means of collaborative real-time learning about processes involved in a specific risk. Moreover this information can also be shared to scientists and authorities to develop further knowledge.

Lastly, it is necessary to understand that fatalist behaviors derived from a total separation between nature and human beings must be avoided. At the same time, assuming that the risk is a social construction contributes to abandon the idea of considering the risk as nothing else but a materialization in disasters. This aspect happens to be fundamental when focusing on vulnerabilities, and on how the communities that suffer from such vulnerabilities count on inherent capacities which can make them resilient. The impartial achievement of this goal is crucial as it becomes a key point for distinguishing information from opinion, as opinion from the mass media side is the basis of many fatalist behaviours.

6. Conclusions

This paper has tried to show how important and necessary it is to leave behind the colloquial formulas that refer to catastrophes as natural disasters. Indeed using the adjective “natural” emphasizes the type of threat people have faced at a certain moment, but it omits the real and long-term circumstances

that trigger the disaster. For these reasons, this work has partly focused on the definition of disasters and all the concepts that shape it, as well as the reasons why it is not right to talk about Natural disasters, which is completely related to the definition of the terms themselves.

When talking about disasters, the media and most of the receivers compare disasters with hazards, which are the phenomena that can cause harm to a society and their goods and that can actually have a natural origin. Nevertheless, this definition does not refer to the real meaning of a disaster, so that is why it is necessary to expand the definition.

Indeed, a risky natural phenomenon will just become a disaster with the presence of a society that is characterized by different vulnerabilities and by a lack of flexibility and adaptability that are necessary to become a resilient society. Social, economical, educational or physical vulnerabilities, as well as social capabilities like education, knowledge transmission, learning from direct or indirect experiences or the creation of strong social bonds are all inherent conditions that can ease the way a population faces a disaster. Anyways, the definitions of hazards, vulnerabilities, social resilience make it clear that risk is a social construction, and as the materialization of risks, namely the disasters, cannot therefore be natural.

Even though disasters should not be treated like extraordinary and dreadful phenomena, the media tend to talk about them in a very catastrophic way. Considering the big influence that the media can have on people's risk perception, efforts should be made in order to prevent alarmist news. These latter, indeed, can foster two types of undesirable human behaviors towards risks and consequent disasters: firstly, the most fatalistic visions that come from a total separation between human beings and nature can lead to resignation, conformism and immobility; secondly, the saturation of alarmist hot news can even provoke a loss of interest among people, thus lowering their risk perception and making them more vulnerable.

In order to guide the generalist mass media in terms of clarifying and simplifying the disaster terminology that should be used, this paper has proposed a series of goals. The most important ones refer 1) to the need to address the human origin of the real conditions that trigger a disaster; 2) to understand the concept of risk as a social construction, and 3) to prevent the fatalist attitudes that generate counter-productive behaviors.

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