

## For Preparedness as Transformation

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### Abstract

In this paper we point out the topic and the rationale of the symposium aiming on the one hand to connect preparedness to the uncertainty that characterizes society-environment relation, on the other hand to emphasise the need for sociology not only to denounce the governmental implications of preparedness but also to engage constructively with this category. We begin by recalling the framework changes that have characterized the social sciences' understanding of disasters by showing how progressively the idea of disaster as a one-time event that disrupts a society from the outside has been complemented by an idea of disaster as a critical moment embedded in historically determined social structures. We will then discuss how the emergence of the preparedness paradigm fits within these developments and how sociological research can help to better understand what is at stake in the governing of (and by) preparedness. In this perspective we advance a reading of preparedness from the vantage point of knowledge. As a conclusion, we discuss how the understanding of preparedness as dependent on socio-ecological transformation raises specific challenges for territorial governance.

**Keywords:** Disaster; risk; preparedness; collaborative governance; knowledge; uncertainty.

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In an influential article published in the *Annual Review of Sociology*, sociologist Kathleen J. Tierney (2007) depicted “Disaster Research” as being “at the crossroads”. It is worth quoting the concluding paragraphs of the essay at length:

Disaster researchers must stop organizing their inquiries around problems that are meaningful primarily to the institutions charged with managing disasters and instead concentrate on problems that are meaningful to the discipline. They must integrate the study of disasters with core sociological concerns, such as social inequality, societal diversity, and social change. They must overcome their tendency to build up knowledge one disaster at a time and focus more on what disasters and environmental crises of all types have in common with respect to origins, dynamics, and outcomes. And they must locate the study of disasters within broader theoretical frameworks, including in particular those concerned with risk, organizations and institutions, and society-environment interactions (pp. 520–521).

In our view, the invitation Tierney addressed to the disaster research community over a decade ago is still relevant today, especially as far as society-environment interactions are concerned. However, as stressed by Hagen & Elliott it is also time for sociology to question the usual understanding of disaster itself as “pathological” moment while acknowledging that “the boundaries between the suspect terrain of disaster and the regular social landscape are increasingly obscured” (2021, p. 2).

In this symposium, we move forward in both the directions indicated by these authors, by seriously addressing the issue of what should be considered as “preparedness” and who is entitled to the definition of the vital infrastructures that need to be protected in an increasingly interconnected and at the same time catastrophe-prone world.

On the one hand, we connect preparedness to the uncertainty that characterizes society-environment relation and the “quest for certainty” (Dewey, 1984). These issues bring to the fore the place of knowledge and the link between knowledge, action and control. On the other hand, the condition of “slow emergencies” (Anderson et al., 2019) societies are facing leads us to emphasise the need for sociology not only to depict the governmental implications of preparedness (see Pellizzoni & Sena, 2021), but also to engage “constructively” (in the sense of Vandenberghe, 2018) with this category that, from the technical language of the circles of disaster management experts, is increasingly becoming part of the common sense. We thus follow Luc Boltanski’s invitation to develop a critical analysis that goes beyond the opposition between denunciation and collusion (2009).

The articles in this symposium all agree on stressing a trend towards the blurring of the boundary between disaster and normality, prevention and preparedness, and also of the distinction between man-made and natural disaster and between human beings and other living beings. This blurring of boundaries, however, seems to benefit technocratic optimists that claim that “we,” the humanity, can control the transformations of the world system and the biosphere through new technologies and expert knowledge. This implies that the *status quo* is considered as the only possible world. In this context of techno-optimism, preparedness operates in a “defensive” fashion, i.e. it is entirely oriented towards preserving the existing sociotechnical order against the risk of collapse.

Moreover, the articles in this symposium converge in stressing the importance of the “frictions” (Tsing, 2005) between globally oriented disaster governance mechanisms, actors’ heterogeneous normative expectations and territorial historicity, in the sense of the specific way in which structures are the sedimentation of territorially inscribed histories. It is through these

frictions that both the reproduction of existing power relations and potentially transformative collective action take place.

In order to analyse these frictions, however, sociology needs to develop a critical perspective about the expert knowledge of disaster science. Using Michael Burawoy's categories, one can say that mainstream sociological research on disasters is still primarily a "policy sociology," whose "*raison d'être* is to provide solutions to problems that are presented to us, or to legitimate solutions that have already been reached" (2005, p. 9). In other words, mainstream disaster research takes the form of instrumental knowledge to support other actors' problem-solving capacities, often without questioning the processes that brought to the definition of problems, their democratic inclusivity but also their normative presuppositions and underlying "ontological politics" (Mol, 1999).

More precisely, mainstream sociological research on disasters mainly addresses problematic issues that have been formulated within the "international disaster community." This latter is a "social world" whose logic of formation and functioning has been ethnographically investigated by anthropologist Sandrine Revet (2020). Revet described the diversity of actors who populate "Disasterland" and who include representatives of international institutions, disaster researchers, state representatives, NGOs representatives, experts, technicians, financial institutions and other economic actors who circulate across the globe from one workshop on global climate change to the next conference on "Building Back Better" configuring a "community of practice" (Wenger, 1996). Revet (2020) described the hierarchies that structure Disasterland, in particular the hierarchies of knowledge, showing that there is little room for the reflexive knowledge of "critical" and "public sociology" of disaster. In this respect, the mainstream sociology of disasters is not only losing sight of broader theoretical issues but also isolating itself from the diversity of disaster experiences.

It is in Disasterland that disasters are defined and measured, and "apparatuses" (Revet, 2020) for managing disasters are set. These operations are increasingly done on the basis of a "disaster science" that is meant to support the international capacity of "disaster risk reduction" on a global scale. Disaster science supports technical solutions and approaches to disasters dominated by natural sciences, especially climate science (Cabane & Revet, 2015). The apparatuses that govern disasters reinforce a trend of governing societies, and especially society-environment interactions, through standardized indicators and benchmarks defined with the aim to work globally (Rottenburg et al., 2015; see Lakoff, 2021). In fact, the increasing relevance of climate change as a common background of disaster situations gives strength to the position of those who think that an effective disaster risk reduction can only take place via global coordination. Global coordination, however, is conceived more as a top-down process than a bottom-up work of coordination across a variety of local situations. Still, disasters are always happening in specific situations and they do not exist outside contentious social processes defining what counts as damage, who is to blame, who deserves to be protected, how to build back (see Caselli et al., 2021; Centemeri et al., 2021; Folkers, 2021).

A form of governing societies "by disasters" (see Revet & Langumier, 2015) has progressively taken shape with the exceptionality of emergencies becoming an ordinary condition of exercising institutional power. Emergency is no more interpreted as an event but as an enduring condition (see Pellizzoni & Sena, 2021) that goes hand in hand with a view of precarity — understood as "life without the promise of stability" (Tsing, 2015) — as the generalized condition of the present.

These transformations help to understand why the terminology of disaster management increasingly permeates the vocabulary of everyday life. As we are going to discuss, this has

particularly been the case with the notion of resilience but, with the experience of the pandemic, another notion usually confined in the circles of disaster management has entered the common knowledge: preparedness, i.e. the ability to effectively anticipate and act promptly in the face of an imminent threat.

This symposium helps to go beyond the way in which preparedness is defined in the community of disaster risk management to explore from a socio-anthropological perspective what it means to be prepared to highly probable, still uncertain catastrophic situations. This work is necessary, on the one hand, for an analysis of preparedness as a contentious battleground where ideologies, interests and powers confront each other; and, on the other, for supporting processes of social re-appropriation of preparedness beyond emergency management. We argue that the need to “be prepared” could be seized as an opportunity to promote a socio-ecological transformation aimed at valuing collaborative ways of dealing with the uncertainty of socio-ecological interdependencies (Keck, 2021), producing knowledge about them and implementing technologies, strategies and tools to manage them.

In this introduction, we briefly recall the framework changes that have characterized the social sciences’ understanding of disasters by showing how progressively the idea of disaster as a one-time event that disrupts a society from the outside has been complemented by an idea of disaster as a critical moment embedded in historically determined social structures and existing as such through the “normative work” (Dodier & Barbot, 2016; see also Stark, 2014; Folkers, 2021) of social actors. We will then discuss how the centrality gained by the preparedness paradigm fits within these developments and how sociological research can help to better understand what is at stake in the governing of (and by) preparedness. In this perspective we advance a reading of preparedness as transformation, from the vantage point of knowledge. In the concluding section, we discuss how the understanding of preparedness as dependent on socio-ecological transformation raises specific challenges for territorial governance.

## 1 From Disaster as External Threat to the Social Production and Social Construction of Disasters

The category of disaster first emerged in social sciences in the United States and in a particular historical conjuncture, that of the Cold War (for a more detailed reconstruction see Tierney, 2007; Cabane & Revet, 2015; Dahlberg et al., 2016; Fortun et al., 2017). Research on disasters was strongly influenced in its beginning by governmental and military needs connected in particular with nuclear issues. More specifically, disasters were conceived by public authorities as “laboratories” to study social and organizational behaviour in stressful situations. In this sense, disasters were seen as “a duplication of war” and human communities as “organized bodies that have to react organically against aggression” (Gilbert, 1998, p. 4). In this view, the causes of disasters are situated on the outside, in the form of an external aggression, or sometimes an internal threat, as in the case of social unrest. As pointed out by Perry (2018), in this “classic period” of disaster research authors defined disasters as “rapid onset events”, in which the impact or threat of an agent causes social disruption requiring readjustments. Disaster studies then focused on organizational and emergent social behaviour during and immediately following such disruptive events.

Claude Gilbert (1998) distinguished this paradigm of “disaster as war” from two successive frameworks in which the definition of disaster undergoes a reframing and progressively evolves towards an idea of disasters as “social phenomena” (Perry, 2018). In fact, since the 1970s, the

understanding of disasters as events caused by exogenous factors has been challenged by a group of critical, politically engaged geographers who broke with “realist” techno-engineering and natural science approaches to disasters. They showed how poverty resulting from forms of economic and political domination often related to colonialism was the key factor explaining humanitarian crisis situations that had supposedly been triggered by “natural” disasters, especially in countries of the global south (Revet, 2020).

These critical approaches, which had their roots in a political economy perspective inspired by Marxism, were also influenced by contemporary developments in systems thinking that provided evidence of the anthropogenic nature of the ecological crisis. They led to the emergence of the notion of vulnerability as a key concept for understanding disasters as socio-ecological phenomena. The “vulnerability approach” to disasters implies that “critical to discerning the nature of disasters [...] is an appreciation of the ways in which human systems place people at risk in relation to each other and to their environment” (Hilhorst & Bankoff, 2004, p. 2).

This implied that disasters should be studied taking into account a temporality that goes beyond that of the emergency since they are a social product of historical processes. Therefore, disasters started to be analysed as “the result of underlying community logic, of an inward and social process” (Gilbert, 1998, p. 3). In other words, the understanding of disaster evolved from an isolated event caused by an external agent into the outcome of long-term processes that had generated conditions of vulnerability. Even in high-income countries, disasters were shown to have different impacts on a population within the same city, region or nation depending on socioeconomic indicators, including class, gender, age and race (Cutter, 1996; on disaster and racial capitalism see Jacobs, 2021).

The vulnerability paradigm also led to an interest in “local knowledge” and to a critique of development policies as interwoven with top-down processes that increase the vulnerability of entire regions (Cuny, 1983). However, the notion of vulnerability has been progressively “emptied of its political and social essence” (Gaillard, 2019, p. 10). Paradoxically, the development of vulnerability indices contributed to this process since these measurements were implemented to accompany top-down interventions that left little room for community involvement. The framework of social vulnerability has thus been used to legitimize state interventionism, international programs of development and, more recently, initiatives of “philantrocaptalism” (McGoey, 2012).

Starting with the 1990s, the rising concern with the uncertain impacts of techno-scientific developments has brought disaster research closer to the sociology of risk and collective crises. In this third paradigm, disasters are defined as entirely socially constructed phenomena and they are related to the shared perception of the incapacity of making sense of a situation otherwise seen as serious or worrying. Disasters are then related to the loss of “key standpoints in common sense, and the difficulty of understanding reality through ordinary mental frameworks” (Gilbert, 1998, p. 9).

This transformation is accompanied by the emergence of a new understanding of uncertainty. Uncertainty is no longer a problem of information deficit, in line with the idea of bounded rationality (Simon, 1991), but emerges from a profound deconstruction of the contexts and meanings of action that call into question the very relationship between action and cognition. Confronting this condition requires a great deal of “negative capability” as defined by Giovan Francesco Lanzara, that is, as the ability to generate from indeterminacy “possibilities of meaning and action not yet thought of and practised” (1993, p. 14). It emerges and can be observed more easily in situations of radical destructuring of the context of action, hence the qualification of “negative”: it is the capacity to experience the loss of order and sense with a

cognitive disposition of openness, without immediately trying to re-establish a direction, thus suspending the search for certain facts and reasons. This state of suspension, says Lanzara, does not mean passivity but, on the contrary, can pave the way “for the activation of contexts and the generation of possible worlds” (1993, p. 13).

The acceptance of non-anticipatable crises as inevitable features of complex societies explains the observable shift in disaster research from a discourse of prevention to one of resilience and preparedness. At the same time, an interpretation of disasters as related to sense-making activities brings to the forefront “the intricate interaction between events, individual perceptions, media representations, political reactions, and government efforts at ‘meaning making’” (Boin et al., 2018, p. 35), while also stressing an understanding of disasters as “windows of opportunity that competing interests can exploit for their advantage” (Tierney, 2007, p. 512). This “constructivist” interpretation also invites to extend research on disasters beyond the temporality of the event to investigate how the recovery programmes and the activities of imagining and planning for future disasters become opportunities to orient societies’ development in ways often outside political accountability (Fortun et al., 2017, p. 1011; see also Keck, 2021).

As noted by Luigi Pellizzoni:

the intensification of the governmental salience of uncertainty has led to a pluralisation of anticipatory frameworks beyond probabilistic prediction and its governmental correlate, “risk prevention”; frameworks which differ from one another in a number of respects, from cognitive and ontological assumptions to the implied temporal structure and model of agent. (2020a, p. 43)

In fact, the shift from disaster as related to an external threat to disaster as an outcome of the complex dynamics of socio-ecological systems has been accompanied by a shift from well-known threats to be prevented, to ill-known threats requiring “precaution” and to “hidden threats” that can be dealt with via “pre-emption” (Pellizzoni, 2020b) and preparedness. These logics of anticipation (prevention, precaution, pre-emption, preparedness) today coexist in the ways of governing disasters and they point to the coexistence between models that manage uncertainty assuming, as their ontological basis, the separation between society and nature and models that instead are based on overcoming this distinction.

The rejection of nature-society dualism, however, does not necessarily imply the development of more sustainable forms of sociotechnical organisation since it does not automatically trigger a transformation of the systemic conditions that generate structural vulnerabilities. The “constructivist” ontology can confirm the “neoliberal governmentality” that positively celebrates uncertainty, danger, insecurity, volatility, disorder and non-predictive decision-making (Pellizzoni, 2020a, p. 50; see also Pellizzoni, 2015). This is where resilience and preparedness come in, as the two key frameworks of disaster risk reduction when uncertainty and catastrophe “cannot be avoided but can only be prepared for” (Lakoff, 2017, p.7). Both these approaches can contribute to the generalization and normalization of the crisis conditions which are propitious to the maintaining of the “there is no alternative” scenario. Still, both offer insights into ways to combine the quest of security with the managing of uncertainty in ways that could be potentially “transformative” towards non-dominative society-nature relations.

## 2 Resilience and Preparedness between Governmentality and Frictions

When applied to disaster research, resilience is defined as “a system’s capacity to persist in its current state of functioning while facing disturbance and change, to adapt to future challenges,



and to transform in ways that enhance its functioning” (Keck & Sakdapolrak, 2013, p. 8). This definition eclipses the evaluative dimensions involved in qualifying what disturbance is and the normative standpoint of judgement concerning the desirability of the system to “persist in its current state”. Against the supposedly normatively neutral understanding of resilience, Stark (2014) highlighted the relevance of the heterogeneity of evaluative principles and practices as the basis of social reflexivity. Nonetheless, as stressed by Hall & Lamont (2013), the “social resilience” framework promotes a specific normativity that is sustained by neoliberal policies and narratives and is based on individual and collective capacities to cope and creatively adapt to unavoidable catastrophes, which are seen as opportunities for change.

In disaster analysis, it proved its limitations since the resilience framework has often been co-opted as a justification mobilized by neoliberal projects for withdrawing government support for universalistic welfare measures and more generally public infrastructure investments (Quenault, 2016). Communities are then asked to compete for public, and increasingly private, funding to support resilience building. Consequently, the resilience framework conceals the role of the structural factors in producing conditions of social vulnerability, and it has thus been defined as a ‘post-political’ framework (Swyngedouw, 2010).

Preparedness, instead, points to the capacity of ensuring the security of “vital systems” against threats of any kind, known and unknown. Vital systems are those infrastructures that, if failing, will bring to a systemic collapse (Lakoff, 2008). But the emphasis on maintaining “vital systems” can lead to neglecting the consequences of maintaining them in terms of social inequalities, which have in turn a negative impact on resilience. Moreover, both resilience and preparedness take the desirability of the current state of affairs for granted.

Resilience and preparedness are also linked because when a system is prepared, and therefore successful in avoiding systemic emergencies, its capacity of resilience is less crucial. At the same time, being prepared is part of a culture of resilience, even if preparedness has a specific and distinct logic.

Following Lakoff (2006), preparedness is both an ethos and a set of techniques for reflecting about and intervening in an uncertain, potentially catastrophic future. It points to a new form of knowledge about collective life that Collier (2008) defines as “enactment”. Departing from “the archival-statistical knowledge of social insurance” that played a fundamental role in the development of a modern welfare culture, enactment “comes to ‘know’ collective life not through the regular processes of population or society, but through the uncertain interaction of potential catastrophes with the existing elements of collective life” (p. 244). Even if unpredictable, catastrophes are not ungovernable and new forms of knowledge and assessment are developing. In particular, catastrophe insurance is turning into a key instrument to reshape “our political and moral landscape” (p. 288).

According to Lakoff, the so-called “preparedness techniques” — scenario-based planning, early warning or “vigilance” systems, and medical supply stockpiling — emerged historically in the US during the Cold War, having been subsequently repurposed to address other emergencies like terrorism or health emergencies, like pandemics. In the European context, the debates on new disasters and catastrophes have focused mainly on the issue of precaution while less attention has been paid to understanding preparedness.

An exception is the work of French anthropologist Frédéric Keck (2020) who studied the impact of SARS emergency (2002-2003) in three countries: Hong Kong, Taiwan and Singapore. His research (see Keck, 2021) explores the impact of the pandemic emergency in terms of reconfiguring humans-animals relations. According to Keck, prevention and preparedness are not simply two risk management techniques. They are concepts referring to two distinct

ways human beings have developed to manage uncertainty in their relationship with the environment and its potential threats. Keck names these two ways as “cynegetic” in the case of preparedness, and “pastoralist” in the case of prevention, referring to anthropology’s traditional distinction between hunting and pastoralist societies.

Following Keck, prevention (or securitization) is “the management and control of populations in a territory through the use of statistics”, and preparedness (or mitigating) is “the imaginary enactment of disasters in a community where humans take the perspective of non-humans” (2020, p. 7). More in general, Keck invites “a shift in the reflection on preparedness from the short temporality of emergencies to the long temporality of ecologies” (p. 177). In his view preparedness is based on “simulations designed to identify points of vulnerability” but also on “sentinels” (Keck, 2015; see also Keck, 2020) and it should be explored as a specific mode of understanding causality nexus, as a specific argument on nature-society relation and as a specific form of evidence production.

Sentinel is defined by Keck as an ecological notion that points to “sites where early warning signals are produced” (2020, p. 6). They can span from sentinel cells in organisms, to sentinel animals, sentinel actors, sentinel ecosystems, “digital sentinels”. These signals, however, must be elaborated and integrated into processes that allow for appropriate evaluation and responses to be taken at different scales.

Preparedness, when understood in Keck’s sense as one specific logic of relationship to life-world, is not based on the aspiration to control but on the promotion of forms of collaboration between humans and between humans and other living beings (plants, animals, bacteria, viruses, etc.). Of the three techniques indicated by Lakoff (scenarios, stockpiling and vigilance), it is the third that crucially characterises preparedness, the others being also found in preventive approaches. Still, the development and promotion of forms of collaboration between humans and other living beings can be absorbed into exploitative apparatuses that engender inequalities and ecological degradation (Pellizzoni, 2020a).

In fact, how preparedness is enacted and practiced and the logic of action it promotes is a question that can only be answered through a sociological analysis that takes into account how the preparedness instruments and apparatuses operate in concrete situations and the “frictions” (Tsing, 2005) they produce in the confrontation with actors’ “normative expectations” (Dodier & Barbot, 2016) and the diversity of their practical “modes of engagement” (Thévenot, 2007).

In fact, there is a fundamental heterogeneity of the resources that individuals and groups recur to in order to assess risks and position themselves relative to them. The fact that disasters are governed and that governing by disasters is by now a distinctive feature of contemporary societies should not induce the integration of disasters into a “general economy” as a smooth process (Dodier, 2015, p. 226). *Dispositifs* do not automatically ensure the alignments of actors’ practices and normative expectations.

This is the reason why the concepts developed or adopted in disaster research and that inform public action but also, more in general, social reflexivity on disasters, should always be analyzed genealogically as an expression of socio-historical contexts and intellectual and political traditions marked by a certain understanding of collective security and its requirements, while also paying attention to the existence of conflicting interpretations. Moreover, the tools and instruments that are devised on their name always have to be observed in action: this means that social scientists should pay attention to how they are used by actors as operators to make sense of an experience, to explain a “problematic situation” (in the Deweyan sense) and to act upon it, or to connect phenomena across time and scales.

Conflicts of interest and power struggles should be then analysed in their interdependen-



cies with processes that aim at the definition of a shared “sense of things” across a variety of arenas, of scales and temporalities (Chateauraynaud, 2016). This implies to recognize that the definition of what kind of knowledge should be taken into account to define the critical situation, and act collectively upon it, is of fundamental importance (see Caselli et al., 2021). Still the operations that bring to define the “informational basis” of public action during emergencies and crises are more often than not subtracted to public scrutiny in the name of the exceptional nature of the situation. In this respect the sociology of quantification (Espeland & Stevens, 2008; Desrosières, 2011; Rottenburg et al., 2015) can help to highlight whether knowledge resembles, to borrow a metaphor from Bruno Latour (1987), a black box that hides the process of compromise, choice and negotiation that led to their definition or, on the contrary, if such a process remains visible and accessible to public discussion and modification, building up a form of knowledge grounded and rooted in the context where it was created.

### 3 Preparedness and Knowledge

When discussing preparedness from a knowledge perspective, emphasis is usually put on data analysis and data sharing and transmission. High-tech solutions of the type Early Warning Systems (EWS) are today the key infrastructure of preparedness. A “preparedness market” has in fact developed, which “brings together those who construct tools for surveillance, such as satellites and GPS, and the telecommunications sector, particularly mobile phones and radios” (Revet, 2020, p. 165).

Emphasis is also put on the role of information and education in order to change (and discipline) individual behaviours and support “low-cost” community-based preparedness. According to Revet:

Preparedness may thus be considered a matter for specialists, bringing into play high-tech apparatuses that allow users to anticipate the occurrence of hazards and to communicate expert information by satellite with national authorities. Or it may be considered a local matter that enables residents equipped with whistles or megaphones, scrutinizing their environments, to warn their neighbours of any threats. (2020, p. 167)

The polarization between investments in global surveillance techno-infrastructures and the training of citizens on how to behave in case of disaster mirrors a more general trend of disaster management towards (i) the replacement of the design of reconstruction processes with a set of technical solutions that should ensure safety and (ii) a shift in the centre of gravity of disaster management to the community level and the individual capacities for emergency response.

These trends end up obscuring the link between preparedness and territorial development choices, which are strictly related to territorial governance. As a consequence, what remains largely unaddressed is the way in which the organisational solutions adopted for the production and distribution of goods and services for vital needs create conditions of vulnerability and unpreparedness (de Leonardis, 2021). Disasters thus become an opportunity to reinforce and reaffirm development choices that have been producing and reproducing vulnerabilities, more often than not with a lack of democratic scrutiny in the decision-making process (Imperiale & Vanclay, 2020).

This situation relates to the technocratic matrix of the governance rationality which has gained strength in recent decades due to a tangle of related events: the neo-liberalization and the

neo-managerialization of public action; the institutionalization of an evaluative state (Neave 2012); the entry of ICT and big data into the array of governance tools (Courmont & Le Galès, 2020); the change in the relationship between power and expertise (Raco & Savini, 2019); the mechanisms of de-politicization (Hay, 2007; Busso, 2017).

This is particularly clear in the urban context, where technological solutions have become increasingly central for urban governance. What Brenner & Schmid (2015) defined as “techno-scientific urbanism” is an example of how new modes of spatial monitoring, information processing, data visualization and other technological “fixes” to “intractable governance problems” are today shaping the future of territories and the conditions of their (un)preparedness to future threats. The expression “smartmentality” (Vanolo, 2014) similarly points to the performative power enacted by the models of the smart city thanks to technologies (Kitchin et al., 2020). The smart city model is posited today as a paradigm combining Building Back Better with preparedness, what Madden (2021) calls “disaster urbanization”.

Yet the reliability of these technological tools to detect early warning signals is far from proven, as shown by the case of Google Flu Trends, which was launched in 2008 to monitor changes in the amount of online search queries related to flu-like symptoms and was supposed to work without involving people in any way. Actually, it ran into a number of problems, overestimating for example the prevalence of the flu by more than fifty percent (Lazer et al., 2014).

This shows the urgency of reflecting on the conditions necessary to promote a form of preparedness that is not limited to these technological solutions but also includes territorial knowledge that addresses in a transformative way the determinants of socio-ecological vulnerabilities. Early warning systems are necessary but not sufficient to meet the challenge of being prepared for a future of uncertain catastrophic events and preparedness cannot be reduced to the capacity of the early detection of global threats.

If considered from a territorial perspective, preparedness can instead be conceived as the result of social and ecological care practices that are based on the recognition and maintenance of vital interdependencies as they are experienced in territorially specific situations. These practices express a form of socio-ecological solidarity. It is indeed in the ordinary practice of “material care” (Puig de la Bellacasa, 2017) of the territory that a form of preparedness can be grounded, in its capacity to detect and deal with “contaminated diversity” of nature (Tsing, 2015).

The point is clearly made by Keck (2021) who stresses the importance of the role of sentinels. As devices that “can provide early warning of an encroaching danger” (Lakoff, 2015, p. 6), sentinels deal with experiential knowledge and knowledge incompleteness. They rely on actors perceiving signals at the borders of endangered collectives and on their capacity to read them as symptoms and clues. From the vantage point of sentinels, what knowledge is vital for a system and where this knowledge is produced, that is, the scale that matters to decide about what constitutes a potentially vital threat is not defined once and for all.

From the perspective of sentinels and at the territorial level, preparedness also implies to deal with the problem of “uncomfortable knowledge” as defined by Rayner (2012). Sentinels are often unheard whistle-blowers whose alerts are ignored because knowledge “is in tension or outright contradiction” with those “simplified, self-consistent” (p. 107) representations of the reality that allow individuals and institutions to act upon it. Following Rayner, confronted with uncomfortable knowledge, institutions usually react with *denial* (refusing to acknowledge or engage with information), *dismissal* (rejecting the information as faulty or irrelevant), *diversion* (distracting attention away from an uncomfortable concern) and *displacement* (addressing a simplistic chosen representation of a problem). Unpreparedness is related to these

many ways in which ignorance is not only socially constructed but socially maintained and nourished.

An effective preparedness, on the contrary, entails the capacity to take uncomfortable knowledge into account. It also requires to communicate alerts in meaningful ways according to the diversity of territorial conditions. Neither local knowledge nor “summaries”, as intended by Tsing (2015), alone can be the solution for a territory to be prepared and heterogeneity (see Stark, 2014) is a crucial feature of the knowledge needed for effective preparedness. As a consequence, preparedness requires an investment in the creation of “boundary infrastructures” able to serve “multiple communities of practice simultaneously, be these within a single organization or distributed across multiple organizations” (Bowker & Star, 1999, p. 313). In this respect, a boundary infrastructure of knowledge-making for preparedness is an infrastructure that can accommodate heterogeneous forms of knowledge and “formats of information” (Thévenot, 1984, 2007) and produce relevant “informational bases” (see Caselli et al., 2021) for anticipation and action in a specific territory, in the face of a variety of potential threats.

It is in this sense that preparedness requires governance tools which promote and enhance the ability to generate and share knowledge, information, and socio-technical solutions. In this perspective the territorial governance of preparedness could help to address the social and ecological causes of vulnerability to disasters while also ensuring the territorial capacity to cope with sudden crises.

#### 4 From Governing (by) Disasters to the Governance of Transformative Preparedness

In this article we have argued for an approach to preparedness as an opportunity for societal transformation, in the direction of increased socio-ecological solidarity and a change in the logic that currently guides the organisation of the response to vital needs. As we have discussed, this requires to develop forms of territorial governance of preparedness that turn its potential for transformation into a reality.

Such a governance must overcome some demanding challenges. One is the cognitive challenge, which concerns the centrality of forms of rationality that cope with radical uncertainty by enhancing heterogeneity and interdependence, and favouring the adoption of systemic rather than sectoral interpretative frameworks. The One Health approach, promoted by several international organizations, is a significant case of an integrated method that assumes that human health, animal health, and the health of the ecosystem are inextricably linked. However, what has happened in several countries in regard to management of the Covid-19 pandemic has made the limited implementation of this approach more evident than its potential. In the same way, the debate on the syndemic<sup>1</sup> has brought onto the agenda the need to adopt a systemic perspective in order to understand how several factors interact in the creation of risk situations, and to act accordingly in an integrated manner on several fronts. But if there is no governance that interprets the systemic approach by starting from territories

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1. Richard Horton, editor-in-chief of *The Lancet*, defined the Covid-19 as a “syndemic” and called for governments to “devise policies and programmes to reverse profound disparities” (2020, p. 874). A syndemic, or synergistic epidemic, refers to the idea that the virus does not work in isolation but in combination with conditions (such as obesity, diabetes and heart disease) which aggravate the damage caused by Covid-19 and that are characterized by a distribution that is closely linked to social stratification, and especially to conditions of poverty and inequality.

and their specificities, these debates are unlikely to have any real effect on the processes that generate vulnerabilities.

Preparedness poses a further challenge as a specific mode of ‘governing through time’ (Samimian-Darash, 2011). Research conducted on health services coping with Covid-19 has shown that, in several countries, unpreparedness has been associated with insufficient resources and reserve capacity. In the UK, “government abandoned the public health buffering technique of home testing and self-isolating individuals in the community because available laboratory test capacity and trained tracers could not cope with the number of new cases” (p. 11).

In this respect, redundancy appears as a crucial component of preparedness governance. As Fraud et al. point out in their analysis of the Covid-19 pandemic in the UK: “Redundancy is not simply about having a backup. It is also about the backup being on-line and ready to go[...] Redundancy is also a function of time” (2020, p.16). A connected concept is that of buffering “which puts stores or reserve capacity into some systems. The components within the system become more autonomous, less likely to be disrupted by events upstream, and less likely to disrupt whatever is happening downstream if they themselves go wrong” (p. 17).

The theme of redundancy and buffering techniques in a certain sense warns us of the risk that renouncing long-term perspective may give rise to a reduction of resources and reserve capacities, in an adjusted version of the just-in-time logic which marked the advent of a new model of business efficiency decades ago.

It is not just a question of quantity but of heterogeneity and diversity. In Italy, the case of Covid-19 shows all too well how the poverty of territorial healthcare services — the result of neo-liberal waves of marketization — has greatly reduced the adequacy of the response to the pandemic, evidencing the limitations of an allocative strategy that has massively concentrated resources in hospitals (already scarce and decreasing) to the detriment of other intervention methods (Bifulco & Neri, 2022). A governance that preserves and supports the diversity of practices in the territories is therefore decisive with respect to a transformative goal. As Stark observes, “this means [...] that we have a greater diversity of practices available for recombination when the environment changes. And because we have not organizationally locked in to only one way of doing things, we are also not cognitively locked in” (2014, p. 68).

It should be clear at this point that redundancy also has a social dimension. Redundancy is the latent potential for cooperation and coordination which is present in the territories, thanks to reservoirs of social resources, networks of relationships and collaborative skills that can help the development of ‘boundary infrastructures’. From a preparedness perspective, these resources, whose production and reproduction are linked to the ordinary functioning of society, must be considered as a crucial endowment for dealing with catastrophic events. In other words, preparedness has social foundations, provided that the notion of social is considered in a broad way that opens up to a more than human perspective of social life (Keck, 2021).

The problem of how to build, develop, and preserve these reservoirs is central to a perspective that we may call ‘collaborative governance’. Although the technocratic approach is the one predominant today, collaborative governance still enjoys some favour as the driver of public action reorganization (Bifulco, 2017; Voets et al., 2021). It is central for effectively impacting on vulnerability factors that so heavily influence responses to disasters, since the term ‘collaborative’ underlines co-creation actions that enhance the interdependence between actors and contexts.

The last — and perhaps the most crucial — challenge for a transformative preparedness concerns the power dimension of such collaborative governance. Firstly, there is an issue of

multiscalarly, i.e. the complex interdependence among different power spaces of governance. Since Brenner (2004) it has been evident that, whatever the modelling and engineering of governance may say, these are spaces of tension, conflict and change. It is equally clear that, from the point of view of multiscalarly, ‘territorial’ does not mean ‘local’; rather, it refers to the set of relationships, interactions, alignments and misalignments ranging from the supra-national to the local — and vice versa — that end up in concrete relations with the territories.

Secondly, the question is how, under what conditions and at what degree governance actually strengthens the democratic process. Indeed, as Blakeley (2010) argues, in many cases of collaborative or participatory governance power transforms but does not transfer.

From the point of view of the democratic dimension of governance, the preparedness that does not affect the determinants of vulnerability is shifted to the side of power devices transformation, in accordance with the logic that the notion of governmentality has highlighted for some time. On the other hand, a preparedness able to affect these determinants is obviously placed on the side of power redistribution. This is the ‘deep democracy’ that Appadurai (2019) defined when studying cases of extreme social and environmental vulnerability. This view seems to provide a way out of the bottlenecks of a governance that is stubbornly technocratic, on the one hand, and reductively communitarian on the other.

Nonetheless, this process cannot be taken for granted. In fact many local governance structures operate mainly with a view to allowing the market logic and economic and financial interests to penetrate the public domain, in an attempt to comply with objectives of growth and competitiveness. As a consequence, the territory can become a mere reservoir of resources to be exploited. The marginalization of objectives of inclusion and democratic participation is not such a rare event in governance and a large body of research shows that even when watchwords like ‘participation’ prevail, citizens are not necessarily endowed with greater power as a result (for a synthesis see Bifulco, 2017).

How multiscalarly and democracy can take shape as constitutive elements of a territorial governance centred on preparedness is difficult to say at present. We can only point out that today more and more disasters are striking territories already “ruined” by global dynamics that have exploited their natural and human resources without attending to their reproduction (Centemeri, 2019). Hence the need for a renewed engagement of sociologists in disaster situations to support a broader understanding of preparedness that includes a vision of socio-ecological transformation. These efforts are indubitably uncertain in their outcomes but are necessary nevertheless.

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