



## From risk calculations to narratives of danger

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### ABSTRACT

The purpose of this perspective article is to provide a broader viewpoint on the contents of this special issue on ‘narratives of change’ and the role of narratives not only for climate risk governance, but also for the science-society nexus at the global and local scales. Narratives of change are ambiguous; they can be narratives of risk (the technoscientific version of danger) or they can be narratives of adaptation (contributing to increase agency enhancing capacities).

One common insight across the special issue relates to the multiple dimensions of change, danger and risk, implying that reductive definitions alone are often insufficient to describe and explain current political and governance processes. Complex accounts of change must help understand the many-faceted phenomenon of climate change, which will be crucial in thinking about how to meet and limit future impacts, how to envisage a future sustainable society, and how to deploy inclusive, diverse and democratic trans-disciplinary science.

### 1. A new narrative of climate risk

There is a growing scholarship, including the papers in this special issue, stressing the multiple dimensions of risks associated with climate change. Arguably, a reductive technoscientific definition of risk alone is often insufficient, and it has to be enhanced with a more complex and culturally meaningful account of risk.

This means that new narratives of change must be embedded in the often overlooked cultural, social and related relevant policy processes, requiring a new language of scientific practice, norms and methods. This includes a reappraisal of what constitutes valid applied scientific knowledge. Following the insights of post normal science (Funtowicz and Ravetz, 1993), it is argued that, in the context of climate change, “the issue has less to do with what constitutes fact or opinion but rather the processes through which science becomes knowable and the ways in which this is negotiated and scaled” (Barr and Woodley, 2019, 119). Wildschut uses ‘extended peer review’ (derived from the post normal science concept of extended peer communities) to highlight the role of autonomous citizen science as a reaction “to the legitimation crisis of climate science and as a useful expansion of risk governance in the context of societal change” (Wildschut in this issue).

There is a growing interest in the use of storylines “to construct useful scientific information on the regional scale, and even on the local scale that reflect an appropriate level of uncertainty yet retain the relevant information about climate risk.” At the same time, it is being recognized that “the construction of regional climate information inevitably involves ethical choices”, choices that “should be made by the users of the climate information, based on their values” (Shepherd, 2019).

The editors of this special issue on ‘narratives of change’ are quite explicit on the need to embed the appropriate science in a broader setting, stating that narratives mark an important difference, because the technical framing alone does not fully cover the complexity of a meaningful landscape or region. Thus, the article on adaptation planning in France describes “the experimentation of an art and science co-construction process, which takes its ground on the mapping, analysis and interpretation of narratives of

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change” (da Cunha et al., in this issue). Therefore, scientific approaches, complemented by other forms of knowledge and informed by narratives of change, can provide relevant and robust high-quality insights for understanding and intervening, bridging the gap between abstract accounts and lived experiences. Krauss explains that narratives are not simply data, information or tools to improve climate risk governance or to facilitate communication between science and society; narratives are instead “new ways to define climate problems and, consequently, to open up the window for new solutions” (Krauss in this issue).

William Cronon described the importance of stories of environmental change, because narratives “divide the causal relationships of an ecosystem with a rhetorical razor that defines included and excluded, relevant and irrelevant, empowered and disempowered” (Cronon, 1992, 1349). According to Cronon, these stories and narratives of change help to explain why two authors dealing with the same subject (the long drought that struck the US Great Plains during the 1930s), researching almost the same documents, and agreeing on most of the facts, can come to completely different conclusions about the event. Cronon’s analysis can be recognised in the paper discussing urban climate resilience in Dordrecht (the Netherlands) showing “that historical events, embedded in local memory and identity, have a surprisingly strong impact on how climate change is perceived and acted upon today (Marschuetz et al., in this issue).

## 2. The ending of the world and beyond

Narratives of change are ambiguous; they can contribute to local agency, enhancing the adaptive capacities of communities, they can be narratives of risk (the technoscientific version of danger), or a hybrid of both. In this volume, evidence is provided for a place-based and community-centred climate science, aimed at building the agency-enhancing sensemaking of local communities (Vanderlinen et al., in this issue).

Climate science can also support extreme narratives of danger, including stories about the end of the world. For some, the risk of extinction is quite real, as for Jorge, the blind monk in Eco’s *Name of the Rose* (Eco, 1980). Jorge’s world was coming to an end, but other worlds were emerging. It’s difficult to grasp the new when you live in the transition; with historical hindsight, we know that at Jorge’s time, knowledge was moving from the monasteries to the universities, the engine of civilisation was moving from the countryside to the cities, and land-based economy was being replaced by commerce. Whereas Jorge believed that the world was ending, the Crow Indian chief Plenty Coups (in Cronon’s paper) was fully aware that it was his world which was ending: “When the buffalo went away the hearts of my people fell to the ground, and they could not lift them up again. After this nothing happened”. After the buffalo disappeared, a new history was unfolding but it was no longer Plenty Coups’ (Cronon, 1992, 1366). See also an analogous story about “enduring the ending of the world” in Tasmania (Mudrooroo, 1983).

Towards the end of the XX Century, the Y2K catastrophe was promoted. A decade later a commentator, writing about the predictions of chaos and catastrophe, argued that “it’s always the end of the world as we know it [...] Knowing our computers is difficult enough. Harder still is to know ourselves, including our inner demons. From today’s perspective, the Y2K fiasco seems to be less about technology than about a morbid fascination with end-of-the-world scenarios” (Dutton, 2009). More recently, narratives about the end of the world due to climate change are being promoted by a substantial group of activists, scientists and intellectuals; for them our climate is reaching a tipping point threatening not only civilisation as we know it, but also the collapse of other forms of life and planetary ecosystems.

For many climate activists, mass extinction is no longer a prophecy but an existential risk. It is a simple case of speaking truth to power: science has discovered, calculated and predicted; now it is the turn of political institutions to decide, manage and control (Extinction rebellion, 2019). That political action for the common good follows the discovery of the truth has been, and still is, the conceptual model of the relation between science and governance of the Modern State. It has been a successful problem-solving strategy, based on the clear distinction between facts and values, and the belief that all practical (existential and political) questions, involving conflicting values and purposes, can be translated into problems having a unique technical solution (Ravetz, 1971).

The term ‘climate risk governance’, is an example of the above-mentioned translation and an attempt to reduce the ambiguities of the narratives of change. The practical, existential and political questions of danger are replaced by the technical and neutral problems of risk; whereas coping with danger is a societal issue, managing risks is defined as the task of experts (Douglas, 1992). Underlining the importance of risks, Ulrich Beck characterised the present epoch as the Risk Society (Beck, 1992). Many are convinced that we are no longer facing an uncertain threat but a precise, quantitative risk, and (in the perspective of the extinction proponents) the danger can only be averted by the timely use of technoscience, in conjunction with appropriate institutional and economic transformations. In this context, other authors like Anthony Giddens, highlight the importance of trust in contemporary societies, and the belief that the deployment of expert systems (science and technology) will produce safety out of danger (Giddens, 1991). Also relevant to the themes of this collection is the reflection about the intimate relation between risk and responsibility, preceding the emergence of different formulations of the precautionary principle (Jonas, 1984). How trust and responsibility are to be quantified, along with all the other aspects of risk governance, has not yet been explored, showing the limitations of the translation.

Climate risk governance encapsulates almost all the concerns of the Risk Society: danger and risk, the present and the future, trust and responsibility, science and technology. Indeed, “this discursive translation of danger may help to increase a sense of urgency, as evidenced by the recent emergence of a youth climate movement. However, it also creates the condition in which a climate emergency is being rashly declared, a move that could lead to politically dangerous consequences” (Asayama et al., 2019, 570).

And not only; it also shows how the discourse of risk, in the words of Steve Rayner, “has contributed to the demise of representative democratic politics by displacing public discourses about values with technical justifications for decision making” (Rayner, 2007). This is well-illustrated when extinction predictions are associated with calls and mobilisations to declare a state of

emergency, given the proclaimed total failure of democratic institutions to act. Even a limited scientific disagreement with “the current mood of ‘extinctionism’ which pervades the new public discourse around climate change” is not to be tolerated, with the argument that the time of denial is over (Hulme, 2019).

To live in an age of transition today is to witness fundamental changes in our understanding of the world and of our role in it, at the same time as our human condition is changing. The subject is beyond the scope of this collection, suggesting that the challenge posed by change runs beyond the level of ordinary political debate, pointing to a crisis of philosophical anthropology: who are we, and how should we live, if we now believe that progress will not continue forever? (Douglas, 2019). Below, I’ll concentrate on the changes in the science-society nexus related to climate risk governance, and the role of local narratives.

### 3. From danger and uncertainty to risk, and regress

The transformation of a practical question (danger) into a technical problem (risk) is analogous to the strategy to cancel the well-known Knightian distinction between uncertainty and risk (Knight, 1921). In this case, unknown and unknowable danger can (must) become quantified risk, enabling the fulfilment of the Cartesian ideal of prediction, management and control (Guimarães Pereira and Funtowicz, 2015). An essential feature of this operation is trust in the power of science and technology to shelter us from the unknown and the unknowable. When this belief is weakened or absent, the Risk Society regresses into the ‘Uncertainty Society’; fresh mechanisms of protection emerge, some resembling those of other civilisations in human history.

As mentioned above, the transformation is not specific to climate risk, but it is a general conceptual model of the Modern State. If problems are conceived as simple or complicated (the linear sum of simple problems), the strategy seems to work quite efficiently, becoming the seed of economic, social and technoscientific progress. But when existential, political and practical questions are recognised as complex, then the operation is no longer universally effective because complexity is associated with a plurality of meanings (ambiguity) and a non-closure of networks and casual chains (indeterminacy in the sense of Wynne (1992, 114)).

To say that we are dealing with a complex issue, implies that there is a plurality of legitimate perspectives which cannot be reduced to a single view (Funtowicz and Ravetz, 1994). Thus, the transformation is no longer ‘One practical question = One technical problem’ but ‘One practical question = Many technical and non-technical problems’. Furthermore, many correct technical solutions are possible or even no technical solution at all. Sometimes, the ambiguity and indeterminacy of practical questions is not recognised, and the existence of multiple technical solutions is deemed a scientific controversy. But there is no scientific controversy when different solutions correspond to different problems.

When a practical issue is characterised as complex, wicked (Rittel and Webber, 1973) or post normal, the political question becomes who decides which is the ‘correct’ technical problem to solve or even if there is a credible and legitimate technical problem to solve. This can indeed be the decisive question. The belief that it can be ignored can vitiate the whole project of risk governance. If the age of blueprints of the future is coming to an end (Toulmin, 1990), then new societal experimental arrangements are necessary, in which the relevant technical problems are embedded in political processes deploying a variety of participation styles, narratives, knowledge forms, and existential concerns. Climate science in its Post Normal interpretation opens innovative and democratic opportunities to cope with unavoidable change.

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