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Culture and climate change scenarios: the role and potential of the arts and humanities in responding to the '1.5 degrees target'

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This paper critically assesses the role and potential of the arts and humanities in relation to the '1.5 degree target' embedded within the Paris Agreement. Specifically, it considers the purpose of scenarios in inviting thinking about transformed futures. It includes a preliminary assessment of the *Culture and Climate Change: Scenarios* project, an example of arts and humanities engagement with a '1.5 °C future'. The paper argues that integrating more culturally rooted contributions into the creation and deliberation of climate change scenarios would enrich processes of future-thinking beyond climate model outputs. It would also test and extend some established practices of climate research and policy in anticipating and making futures. The paper suggests that the key characteristics of scenarios as a cultural form are that they provide space for collective, improvisational and reflexive modes of acting on and thinking about uncertain futures.

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Introduction

The 2015 COP21 Paris meeting of the United Nations Framework Convention on Climate Change (UNFCCC) gave new impetus to the task of imagining a range of future worlds by shaping an international deal around an ambitious new target: to 'pursue efforts to limit the temperature increase to 1.5 degrees Celsius above pre-industrial levels' [1]. The prior 2 °C target served as an 'anchoring device' for climate science and policy for almost 20 years [2•,3]. However it was also 'a fiercely debated threshold'; its scientific basis was considered 'tenuous' and it was deemed 'infeasible, expensive, and an inappropriate way of framing climate policy [4–6,2•]. Even before Paris, the emerging 1.5° target was judged by some to be 'no longer within reach' [4,7,8]. Recent research has argued that there is just a 5% chance that temperatures will rise by less than 2 °C and a 1% chance of staying below 1.5 °C [9]. 'Targeting 1.5 °C' can thus be better understood as a grand collective wish rather than a prediction or even a plan [10•,11–13]. This target nevertheless provides a discursive context for addressing the creative scenario work that will be needed to understand and pursue this goal.

The processes of the Intergovernmental Panel on Climate Change (IPCC) and UNFCCC lean heavily on scenarios to explore and present potential future climate risks and responses. Specific details derived from emissions scenarios in the series of IPCC Assessment Reports (1990–2014) have become central planks in 'communication to activate' strategies [14–16]. Totemic numbers warning of 'tipping points' or thresholds to profound social and environmental changes have included '450 ppm CO_2' and 'two degrees of warming' [17]. The majority of IPCC and UNFCCC discourse around scenarios can be summarized as a body of technically driven accounts derived from a mix of natural science and economics research. Climate science is asked 'to furnish policymakers with "regulatory science" and to anticipate and measure the performance of policies in the future' [18••]. The underlying issue is of 'characterising uncertainties' both within and beyond the practices and politics of reasoning about the future inherent in IPCC assessment processes [19]. The IPCC is enmeshed in the 'politics of anticipation' and as such drawn into 'making futures not just forecasting them' [18••]. The IPCC's evolving responsibilities inevitably range across ethical, political and cultural terrain. Yet these normative dimensions of future-thinking are scarcely acknowledged within the formal processes [16].

Moreover, the arts and humanities are almost entirely absent in the scenarios work of the IPCC and the UNFCCC, even though the concept and practice of scenario making originates in these disciplines. Acknowledging the historical and cultural roots of scenarios, and

opening up the imaginative practices of climate research to more collaborative working with these fields of inquiry, might support a more vibrant and imaginative sense of how humanity can be prepared for societal transformations and uncertain futures. The arts and humanities do not offer an instant remedy to challenges of public engagement in complex research and policy processes, or resolve research-meets-policy tensions, but they can open up more expansive understandings of the many ways in which the world is being altered, or might be in future, not simply physically but also culturally and imaginatively, by the 'difficult new knowledge' surrounding climate change [20–22].

This paper emphasises the importance of 'cultural work' on climate change. As Mike Hulme writes, 'however our contemporary climatic fears have emerged [. . .] they will in the end be dissipated, reconfigured or transformed as a function of cultural change' [23]. It also aligns with Karen O'Brien's proposition that the transformational thinking required by climate change, involves cultural changes along with shifts in perspectives and practices: '(p)olicies and decisions associated with transformation extend beyond the status quo, and often challenge traditional ways of thinking about things, doing things, and planning for the future' [24]. This extended terrain calls for new strategies of 'deliberate transformation' [25], that recognise different understandings of agency and human–environment relationships and are an adaptive challenge in themselves [26,27].

We argue that a focus on the creation of 'scenarios' of climate-changed futures offers particularly fertile ground for the exploration of these themes, both within the IPCC and in the wider culture. We suggest that it is time to not only review scenarios thinking but also to recognise the transformative potential of cultural work and the role of the arts and humanities in the public spaces of climate research. We conclude the paper with a preliminary assessment of the *Culture and Climate Change: Scenarios* project, a 'worked example' of sustained arts and humanities engagement with scenarios of a 1.5 °C changed future.

Scenarios: anticipating and making futures

Scenario thinking has long been a prominent strand in the work of the IPCC and the UNFCCC, and draws on predictive scientific knowledge, based on computer models and simulations. It is possible to trace a shift in the way the IPCC Assessment Reports have discussed scenarios: from predictions to projections to storylines and now pathways [28–30]. The IPCC is careful to state that scenarios of human induced climate change and resource depletion are not intended as predictions: 'The goal of working with scenarios is not to predict the future but to better understand uncertainties and alternative futures, in order to consider how robust different decisions or options may be under a wide range of possible futures' [16]. The IPCC's latest approach to emissions scenarios, or Representative Concentration Pathways (RCPs) is intended to serve as a way of 'opening the future', and to encourage people to shape the future they want rather than select from a set of predetermined futures [29]. The new generation of scenarios includes the shared socioeconomic pathways (SSPs) [31] developed together with the RCPs and shared policy assumptions for mitigation and adaptation (SPAs) [32–36].

While RCPs make no assumptions about the kinds of society that generate global greenhouse gas emissions, SSPs describe plausible future conditions and alternative trends for 21st century society. Because SSPs are supposed to be plausible they cannot deviate from current societal conditions, or make any concessions for individual or collective agency, motives, emotions or the value-driven and deliberate transformations of cultural and societal change. In short these scenarios work to eliminate agency, conflict and non-linear change despite the fact that these are all key aspects of the uncertainties of living with climate change. Such scenarios are indicative of the 'cultures of prediction', which pervade the science and cultural politics of global environmental change and where other forms of knowledge (such as indigenous understandings), and meaning-making (for example via arts and humanities) are marginalised [37].

The authoritative status of scenarios within formal climate change research and policy processes is thrown into relief by a better understanding of the history of this practice of 'future making' [38]. The term 'scenario' has its origins as a cultural form in the improvisations of Italian baroque street theatre, where it indicated the synopsis of a play. Scenarios were a prompt to performances that responded to the complexities of the everyday, revealing the relations, emotions, values and motives of societal conditions. In Hollywood's silent movie era 'scenarios' referred to screenplays. In the 1960s the word was borrowed to describe the strategic planning techniques that involved systems thinking, or 'scenarios' for nuclear warfare developed by Herman Kahn with the Rand Corporation. Kahn's techniques for thinking in terms of multiple possible futures set the standard. His futures included 'the unthinkable', and evaluation and selection of the most and least desirable futures, known as 'best-case' and 'worst-case' scenarios [39,40]. Perhaps the best-known scenario analysis associated with global environmental change debates is the 1972 publication, *Limits to Growth*, based on the World3 computer model [41]. Since that time scenario and forecasting techniques have been widely applied in business and policy. Most notably, from the early 1970s onwards, Shell developed a method of scenario planning that was designed to help the company anticipate and adapt to future shocks and turbulence [42•]. The synthetic storytelling inherent in scenarios is prized for being open as much to 'bizarre crises'