Guest editorial: Climate change as a complex phenomenon and the problem of cultural governance

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Introduction

Climate change is a complex environmental, cultural and political phenomenon that is reshaping the way we think about ourselves, our societies, relationships between socio-political and biophysical systems, and humanity's place on Earth (Hulme 2009). The science is clear: the Earth is warming (IPCC 2007: 2). But controversy continues to centre around the significance of the risks that climate change poses, the causes of warming based on the science, the scale and pace of future impacts and what regulations, policies and investments might obviate climate change locally and globally (IPCC 2001; Steffen 2006: 4; Hulme 2010; UNFCC 2011).

This special issue presents the key research findings generated by the Australian Research Council international Linkage project, *Hot Science Global Citizens: the agency of the museum sector in climate change interventions. Hot Science*, an interdisciplinary project, operates within these gaps looking to the cultural sector and cultural institutions (natural history museums, science museums and science centres) as agents for change and as places to provide information, activate, broker discussions and decisions around climate change issues, locally and as part of trans-national coalitions

In climate change governance, interventions such as mitigation, adaptation and environmental reform are based on an ecological modernization model (Mol, Sonnenfeld, Spaargaren 2009). That is, a model premised on the notion that scientific evidence can reveal the future workings of the climate, estimate levels of dangerous climate change and where human interventions, through the market, technology, attitudinal and behavioural change, can control nature and secure the atmosphere within acceptable levels of warming. The framing of climate change, as a problem to be solved by the governance of the atmosphere and the stabilization of greenhouse gas concentrations at certain levels, consequently restricts action to a limited repertoire of possible governing options.

However, the challenge of formulating agreements and implementing mitigation policy at the international, national and local level in the context of partisan interests is all too evident. Since 1997, the Kyoto Protocol has acted as the benchmark agreement for shaping the goals of global mitigation. Subsequent UN Framework Convention on Climate Change, Conference of the Parties (COP15 and 16) in Copenhagen and Cancun have failed to establish a new binding agreement. Framed on the basis of dominant science and economic rationalities and linear thinking, governing climate change becomes a universalizing, global project in which everyone in the world must agree and comply regardless of their values and beliefs and ideologies (Hulme 2009). At the same time, universalizing projects attempt to reconcile the contradictory concerns of free-market liberalism and the partisan interests of nation states with global collective action.

Climate change governance agendas and strategies for action and reasons for inaction are characterized by contradictory polarities between global and local, core and periphery, states and markets, urban and rural, universalism and particularism, public and private, East and West, developed and developing, large and small, integration and disintegration (Rosenau 2003). These fragmentary dynamics and contradictory tensions have deep implications for the organization and governance of societies where current ways

of thinking and doing things are no longer adequate (Ang 2011). Climate scientist Mike Hume in his book (2009) *Why We Disagree About Climate Change* observes that climate change means different things to different people in different locations as evident in recent debates around the implementation of a carbon tax in Australia. That is why we disagree about the risks the phenomenon poses and what, if anything, we should do.

The means to govern is dominated by science, industry and government. These approaches based on scientific measurement of greenhouse gas concentrations and mitigation practices based on carbon markets and taxes have not attended sufficiently to community practices or to social and cultural contexts. Meanwhile, these gaps between science, society and culture continue to limit the capacities of government and industry to engage with communities to broker socially and culturally informed policy, high quality culturally intelligent, socially robust policy and innovative approaches to climate change. To be sure, approaches based on dominant and limiting perspectives around technology and science fail to open spaces which enable us to consider reflexively and creatively climate change as a condition emerging from the way we want to live in the world, our relationship to the environment, and our responsibilities to temporally and geographically distant others.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) stated that governing options must include consideration not only of environmental and economic aspects, but also of societal attitudes to risk; and that coalitions needed to be built across sectors to enhance efficiency, equity, and strengthen future assessments (IPCC 2001). Tackling climate change in the context of the cultural and the social is, in the IPCC's imagination, a task based on an actuarial framing of risk management and modelling based on risk perceptions. Risk management operates in an immaterial form as mediated and contested definitions of risk, and in a material form as tangible events requiring decisions and action (Beck 1999). As a governmental form, risk acts as a technique for governing the uncertainty of climate change by combining scientific assessments of risk scenarios under different levels of greenhouse gas concentrations with the risk perceptions and concerns of populations as a means to securitize life (Beck 1999). Therefore, the role of culture, and of cultural institutions in cross-sectoral coalitions becomes orientated towards and limited to mediating risk calculations.

Clearly climate change governance is in crisis. Current approaches to governance are inadequate and universalizing projects through the Kyoto Protocol and the United Nations Framework Convention on Climate Change based on finding consensus on acceptable levels of warming and mitigation targets has proven difficult. Intrinsic to the governing problematic are deep and intractable conflicts derived from a diversity of ideological positions, and partisan interests. Clearly, there is a requirement for complex thinking to be instituted across sectors and scales (Hulme 2009; Ang 2011).

Hot Science engages a complexity framework as a means of interrogating how the cultural sector and cultural institutions (natural history museums, science museums and science centres) might operate variously as agents in climate change governance.[1]

Due to its scale and complexity, the project was divided into three strands. *Strand 1, Climate change – interventions and institutional forms*, led by Fiona Cameron with Brett Neilson, was an investigation of current and potential interventions and agencies of museums and science centres in climate change debates and decision processes, and the emergence of new institutional and networked forms. To this end, we set the context and scoped the range of agencies, entities and actors operating within a complex climate change through a general demographic online survey of 2100 participants conducted across Australia and the Eastern seaboard of the United States (New York State, New Jersey and New York City). Here, we tested people's affective responses to climate change; levels of understanding of the issue and their own interpretations of what climate change means; public and private sphere contexts for governance through notions of responsibility for mitigating climate change, government performance, policy initiatives and their relative importance; the place of community decision-making in policy, information sources and their relative credibility and emerging conceptions of global citizenship in terms of framing trans-national communities of shared risk.

Cultural institutions, such as museums, have been predominantly framed as a Foucauldian governmental apparatus (Bennett 1995) as sites for governing citizens' habits

and actions, and as places for circulating normative views around nature, culture, technology, progress and the market as a solution to climate change (Cameron 2010). A key research objective was to test a range of position statements concerning the current and potential roles of museums and science centres. These statements or communications, which emanate from leading edge science, mediate the collective actions and decisions that arise from local-global dialogues. The objective was also to explore how museums and science centres function as agents in new cross sectoral partnerships in the interstices between representative government and grassroots movements (see Cameron and Deslandes this issue). These findings were complemented by onsite surveys at the five partnering institutions, focus group discussions and institutional interviews with staff from the partnering institutions.

Drawing on the qualitative and qualitative research around the positioning statements and bringing these findings together with cultural theories (governmentality, network, complexity, assemblage, risk society and risk cultures and theories of deliberation), we then sought to articulate how museums and science centres might operate within a broader range of climate change governmental assemblages (see Cameron this issue). The analysis of climate change programmes was also a central research strategy to begin to ascertain how institutions currently operate within governmental networks. Another important research trajectory was the interrogation of how institutions as governing entities frame audiences as consumers and moral and responsible citizens, and ways they might be re-framed as valued producers and actors in multifarious ways as a counter move to their restricted and limited profile as passive entities to be reformed. This argument is variously expressed using the qualitative data in both Cameron's paper as reflexive and creative actors in imagining futures, and in Cameron and Deslandes's as actors in deliberative processes in framing policy as expressions of future lifestyles.

Questions of temporality, the future and uncertainty were core themes in our research. Climate change is about the present but it also engages the future – how the future is imagined and managed in the present. Museums and science centres have always, primarily, been places that engaged with the future through programmes that shaped behaviour and attitudes with a view to producing moral citizens.

Science centres have tended to focus on the future by formulating technologically mediated utopian futures showcasing leading-edge technologies as markers of progress. New scenarios in exhibition development, as seen with the exhibition *Science of Survival* at the Science Museum in London and the exhibit, *Climate Change, Our Future, Our Choice* at the Australian Museum ask visitors to imagine future climate and lifestyle scenarios in 2050. Visitors were invited to make the link between forecasting and modelling strategies in both climate science and the finance and insurance sectors.

This dramatic temporal shift to the future promotes uncertainty as a condition of life in stark contrast to the institutional trade in certainty and rational thinking. Therefore, an important element of the research centred around the question: how can institutions engage an uncertain future? To this end, we examined the emergence of creativity as an idea and as a modality of governance in uncertainty – a tactic increasingly deployed as a means of intervening in circumstances beyond our control and rational prediction and where no prescribed scripts for action are in existence (Hallam & Ingold 2008). We examine how creativity and the older, albeit re-framed, institutional position of reflectivity on the past might be deployed as a counter manoeuvre to the paralysing dystopic discourses of crisis, catastrophe and human sinfulness behind much governmental thinking (Hallan and Ingold 2008; Ford 2011; Prinis *et al.* 2011) and institutional work.

Further to this, Brett Neilson's research draws on his expertise around new organizational forms to examine the idea of museums and science centres within networks and as organized networks as a modality to think differently about institutions in governance flows in-between formal politics and grassroots social movement

Strand 2 – Climate change – science humanities interfaces, led by Bob Hodge, investigated how institutions communicate climate change and how they might engage the issue more meaningfully as a scientific and as a cultural issue. The aim here, was to re-think communication strategies in the humanities and the sciences; to look at alternative forms of knowledge around climate change; and to develop a richer landscape of science dialogues.

Here, the researchers analyzed a range of theories to offer alternative ways of looking at climate change and culture as a highly contested, complex, fluid and as a changing category unpacking concepts such as culture and nature, local and global, science and non-science. These concepts were connected to the contexts in which climate change is thought about, to social life and the cultures of science, science centres and museums (see Hodge this issue)

The cornerstone of this strand's research methods was a series of 'trialogues' (as Hodge calls them), involving new research techniques employing three-way conversations between leading humanities researchers, climate change scientists and museum staff as a means to analyze and critique current approaches to climate change communication and formulate new ones. Theoretical and discourse analysis also formed part of this process.

Another theme of this research strand, led by David Karoly, is an investigation into the logic of the debate between scientists and sceptics on climate change as reported in the media. Here the analysis moved beyond a simple binary perspective on viewpoints towards an understanding of the complex political, economic, cultural and scientific positions which give rise to them.

Strand 3, Climate change, citizenship and media, led by Juan Salazar, explored community engagement through different types of media – mainstream and community – and undertook a critical analysis of how these media sources engage, present and communicate climate change (see Salazar this issue). The aim of the research was to link community media and social movements to museums and science centres as a medium and resource to expand community engagement in discussions and decisions. Other research objectives involved: the critical analysis of social media and its uses in museums as participatory tools; and the validity of different types of knowledges in the climate change debate both expert and lay, indigenous and non-western, as a way of informing and developing strategies for promoting ideas of cognitive justice around the issue.

New circumstances - new challenges

Climate change, as a new phenomenon and as an articulation of the anthropocene, a descriptive term of a new era in human history in which humans are posed as a geological force (Crutzen 2002; Zalasiewicz *et al.* 2010) highlights the global interdependencies of socio-political and biophysical systems. It also highlights the non-linear contingencies of these systems where the social is no longer secure and separate from nature and where the future can no longer be seen as certain and knowable through rational systems of analysis. French theorist Edgar Morin (2008), a long-time proponent of the need for applying complex thought to the social, argues that complexity is inscribed in all phenomena, in both physical and social systems. The nature of these non-linear complex relationalities and entanglements opens a space in which the museum as an institutional form and institutional practices might be re-considered as a complex formation.

This framing sits uncomfortably with the histories of the museum and science centre project. Museums and science centres, as sites of production for scientific knowledge on climate change, involve the tactical removal of complexity. They are part of the enlightenment project in which simplification offers a way of attempting to know and provide a certain script for action (Cameron this issue). While acknowledging the entanglements of physical and social systems in regards to climate change mitigation in science information provision, human consumption patterns are linked in a linear fashion to greenhouse gas proliferation and global warming and the long-term maintenance of the atmosphere at accepted concentrations. Linear thinking of this nature does not deal with the atmosphere as a complex adaptive system involving the human and non-human nor the complex relationship between ideologies, views and values about the way we live in the world and its wider implications on the system of governing.

In an increasingly globalized and interconnected world, and in the context of the complex and trans-nationalizing effects of climate change as an idea and a phenomenon to be governed with its associated cosmo-political entanglements around variable and often conflicting views of the cosmos of nature, of the cultural, the economic and the political, a

renewed epistemological inquiry must be made into the conceptualization and operation of institutions in these new circumstances. This re-framing must involve a reconsideration of institutions and institutional forms as local-global entities; their communication functions; their relations with audiences as actors beyond entities to mitigate greenhouse gas emissions; the temporal reframing of institutional attention to the far future and how the articulation of future imaginaries and lifestyle options might be mediated in this complex field.

To this end, the authors in this special issue also consider new theoretical imaginaries and practical solutions based on complexity thinking.Their aim is to consider the ways institutions can operate as non-linear, self-organizing, emergent and adaptive systems. Integral to this process is a reconsideration of the mutually constitutive entanglements of the ideological, sociopolitical and biophysical aspects that have previously been hidden behind the enlightenment approach to science with its institutional framing of climate change. What is also needed is a reworking of associated pre-occupations with the objective, the impartial and the certainty that is so dominant in institutional culture.

Notes

1   http://www.hotscienceglobalcitizens.net/

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