



Democracy, citizenship and anticipatory governance of science and technology

A report of the ESRC Critical Public Engagement seminar,
15 December 2009, Institute of Hazard, Risk & Resilience, Durham University

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Introduction

Contemporary science policy has taken a distinct 'deliberative turn'. Across a range of domains – biotechnology, the life sciences and nanotechnology to name but a few – recent government policy increasingly speaks of the incorporation of public engagement and the social sciences into the development of new research programmes. Thus while there is debate as to practical implications of new forms of deliberative or participatory governance in science policy – and the extent to which this deliberative rhetoric represents an authentic renewal of democracy – recent debate is marked by a consensus regarding the anticipatory and deliberative capacity of public engagement.

However, such a consensus also begs many questions – how are forms of public engagement and deliberation being institutionalised in the governance of science, how can deliberative methods 'anticipate' potential public concerns, and will the incorporation of such techniques materially alter the direction of technoscientific innovation? More broadly concerns have been raised regarding the kinds of democracies being enacted in debates about the direction and purposes of technoscientific advance.

The second workshop of the ESRC seminar series *Critical Perspectives on Public Engagement in Science and Environmental Risk* – held at the Institute of Hazard, Risk and Resilience, Durham University on Tuesday 15 December 2009 – explored these questions.

Workshop presentations

After a brief welcoming address by Professor Mike Pennington (Dean for Educational Outreach, Durham University) the workshop began with an introductory address by Dr. Matthew Kearnes (Institute of Hazard, Risk and Resilience, Department of Geography, University of Durham). Matthew introduced the recent emergence of a 'deliberative turn' in the governance of science and technology. In the broadly international consensus the incorporation of public engagement, together with social scientific and humanities scholarship, is taken as a hallmark of new modes of innovation. Contemporary science policy increasingly calls for the incorporation of public engagement and deliberation into the development of new technologies. This approach is framed by the perceived need to avert potential public controversies about new technologies and new proposals for the anticipatory governance of science and technology. The effects of these new models of innovation have been felt most keenly in new and emerging research programmes such as nanotechnology, synthetic biology, stem cells and neuroscience – where public engagement methodologies have been called upon to provide early social intelligence regarding potential public concerns and attitudes to these domains of

innovation. Matthew then outlined a range of workshop questions that this consensus entails: the degree to which public engagement and deliberation are being institutionalised in the governance of science, the capacity for 'deliberative' methodologies to 'anticipate' public concerns, and the capacity for the incorporation of such methods to martially alter the direction of science and innovation.

Addressing these themes, Professor Dave Guston (Center for Science Policy and Outcomes, Arizona State University) gave an opening keynote address entitled Anticipatory Governance at CNS-ASU which detailed the ambitious research and engagement programme currently underway at ASU's NSF funded Center for Nanotechnology in Society, organised around the principles of 'real-time technology assessment' with attends to develop social and ethical reflexivity amongst contemporary nanoscientists and capacity for forms of anticipatory governance. Based on the requirements of the US 21st Century Nanotechnology R&D Act (2003 – PL 108-153) which established an NSF-funded 'societal implications research programme' and the requirement that societal concerns be integrated into the research and development of nanotechnologies the Center's activities therefore constitute one element of the US flagship investment in both social scientific scholarship and direct public deliberation on nanotechnology. In outlining the Center's ongoing activities David articulated the intellectual rationale informing their approach. Accordingly he defined anticipatory governance as a 'broad-base capacity extended through society that can act on a variety of inputs to manage emerging knowledge-based technologies while such management is still possible'. Based therefore on notions of real-time technology assessment or upstream public engagement David articulated a model of public deliberation integrated in forms of governance designed to modulate the development of nanotechnology. In this model public deliberation sits alongside foresight and integrative work with practicing scientists as one of a set of capacities designed to enable forms of reflexive anticipation.

Two sessions of 'critical responses' were held after a brief lunch-break. Dr. Javier Lezaun (Saïd Business School, University of Oxford) spoke on the theme of: 'Is anticipation compatible with precaution?' He reflected on anticipatory governance as one of the most interesting attempts to operationalise STS ideas on public engagement in policy arenas. Javier raised two key issues with the notion of anticipatory governance and upstream engagement, both related to the particular forms of 'temporality' at play. First, he asked whether principles of anticipatory governance can be extended beyond emerging technologies to consider other forms of technological change. Second, he questioned whether the logic of anticipatory governance is compatible with principles of precaution that have become institutionalised over the past few years. Here Javier raised a potential criticism of the anticipatory governance agenda in that the motivation can often be to remove barriers to technological progress through anticipating problems early on before public resistance and friction has materialised. In this sense anticipatory governance is seen to be about a particular 'velocity' of development, about 'speeding up', that makes it difficult in engagement processes to come up with precautionary perspectives on 'slowing things down'. In certain contexts this can make anticipation and precaution incompatible. Javier ended by stating that critical public engagement in the context of anticipatory governance needs to encourage open framings and visions of the future that simultaneously allow overflow of the political commitments that emerge.

Dr. Sarah Davies (Institute of Hazard, Risk and Resilience, Department of Geography, Durham University), followed with a paper entitled: 'Spaghetti Junction: 'Public

engagement' as an object of study'. Her presentation detailed a research project conducted in collaboration with the Beacon for Public Engagement North East (www.ncl.ac.uk/beacon/). Beacon North East – part of a range of public engagement beacons initiated across the UK – is focused on three areas of public engagement: 'improving the quality of research by bringing together academic experts with 'experts by experience' from outside the academic world'; 'working with local communities on research which solves real problems and makes a difference to people in the North East'; and 'supporting and promoting public engagement at Durham and Newcastle universities'. In exploring researchers' conceptions of public engagement Sarah suggested that public engagement is associated with a diversity of approaches, ambitions and goals. She presented empirical evidence on the ways in which public engagement practitioners articulated the genealogy of their own practice together with the aims and objectives of their work. She concluded by highlighting the ambiguity of the very notion of public engagement – with little overt reflection on the different meanings of the term – as it is being increasingly incorporated into institutional practice.

In her presentation Dr. Suzanne King (People Science & Policy) gave some 'reflections on public engagement in the governance of science' including her sense of the drivers for the current enthusiasm for public engagement, definitions of public engagement and an analysis of contemporary models of upstream public engagement. She suggested that current notions of public engagement are driven by both pragmatic motives – the perceived need to avoid future technoscientific controversies – and what she termed a 'democratic imperative'. Here the incorporation of public engagement into scientific research programmes might be seen as one element of efforts to modernise government through forms of direct public participation in decision making. In outlining the challenges posed by upstream public engagement – that at upstream stages notions of the perceived benefits and risks of technologies are rather vague – Suzanne suggested that the current enthusiasm of this form of deliberation was shaped by at times contradictory motives. She suggested that while at times such projects are genuinely guided by an attempt to understand potential public concerns about emerging technologies underlying notions of the need to persuade the public of the benefits of technology pervade the field.

Drawing on her collaboration with Dr. Alison Mohr in the evaluation of the BBSRC/MRC/Sciencewise dialogue on stem cell research (2008), Dr. Sujatha Raman (Institute for Science and Society, University of Nottingham) spoke on the theme of 'capture, conflict and construction: muddying the waters of public engagement'. Sujatha therefore sought to locate a capacity for social scientists to engage in both active and critical assessment of current institutionalised programmes of public deliberation on new technologies. As such Sujatha identified a central paradox that frames current public engagement processes – that they will uncover the diversity of public views regarding new technologies and also produce a help to build a broadly-based consensus of opinion on their relative risks and benefits. In this context the construction of both the methodology of engagement processes and the reporting of results of such processes in public is critically significant for understanding the wider meaning of such processes.

Workshop discussion

The final sessions of the workshop were devoted to two breakout sessions and final reflections provided by Prof. Andy Stirling (Science Policy Research Unit, University of Sussex). In these sessions workshop participants were asked to consider what a critical research agenda concerning public engagement on new technologies would look like. That is participants were asked to discuss how critical social scholarship would shape the contexts, aims and practices of public engagement processes, and the sort of critical studies that should be conducted.

A range of themes emerged from this conversation, and from Andy's final reflection. Firstly workshop participants considered the appropriate 'targets' of public engagement. Andy summed up the discussion in the following way: 'if engagement is about the orientation or direction of science and technology, which actors should be the proper focus for engagement?'. A range of actors who drive the directions of research and innovation might include: scientists themselves, universities, mission-oriented agencies, corporate interests, government, consumer demand and mainstream political organisations. The workshop discussion suggested that with current approaches largely based on developing forms of direct exchange between practicing scientists and the wider public (this being an inheritance from older models of 'science communication') the tendency in most engagement processes is therefore to involve actors with the least influence over the trajectory of technoscientific innovation. Therefore in developing a critical research agenda on the public engagement in emerging science and technology the workshop discussion centred on proposals for focusing critical attention such that such processes might genuinely influence the direction of technological development.

Secondly Andy summarised the workshop discussion by questioning the presence (or absence) of 'politics' in contemporary public engagement processes. He suggested that given that if there were real political traction in current rise of engagement in science and technology, we would expect to see new manifestations of encounters between divergent interests, contending values and conflicting intentions. If this manifestation is seemingly absent from the current institutionalisation of public engagement – particularly as it is shaped by a desire for consensus and commonality – Andy questioned what this might mean and the profound implications for understandings of engagement. Andy suggested that one agenda for critical research is to develop new political loci in which public engagement might be located, such that it might become the focus of contending interests and conceptions of what is at stake in technoscientific innovation.

Workshop programme

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- 10.30am Registration, the Joachim Room College of St Hild and St Bede
- 11.00am **Welcome and Introduction**
Professor Mike Pennington (Dean for Educational Outreach, Durham University)
Dr Matthew Kearnes (Institute of Hazard and Risk Research, Department of Geography, Durham University)
- 11.30am **Anticipatory Governance**
Professor Dave Guston (Center for Science Policy and Outcomes, Arizona State University)
- 12.15 pm **Initial responses**
- 12.30pm **Buffet Lunch**
- 1.30pm **Critical Responses 1**

Is anticipation compatible with precaution?
Dr Javier Lezaun (Saïd Business School, University of Oxford)

All things to all people? 'Public engagement' in Beacon North East
Dr Sarah Davies (Institute of Hazard and Risk Research, Department of Geography, Durham University)

Discussion
- 2.15pm **Critical Responses 2**

Reflections on public engagement in the governance of science
Dr Suzanne King (People Science & Policy)

Capture, conflict and construction: muddying the waters of public engagement
Dr Sujatha Raman (Institute for Science and Society, University of Nottingham)

Discussion
- 3.00pm **Coffee/tea**
- 3.15pm **Workshop discussion – two breakout groups**
- 4.00pm **Report back**

Final reflections
Professor Andy Stirling (Science Policy Research Unit, University of Sussex)
- 4.45pm **Close**

Workshop participants

Sandra Bell	Durham University
Jason Chilvers	University of East Anglia
Sarah Curtis	Durham University
Sarah Davies	Durham University
Luke Dilley	Newcastle University
Rachel Douglas-Jones	Durham University
Nina Finlay	Durham University
Burcu Gorgulu	Institute for Science & Society
Garry Kass	Natural England
Matt Kearnes	Durham University
Suzanne King	People Science & Policy Ltd
Javier Lezaun	University of Oxford
Phil MacNaughten	Durham University
Claire Marris	BIOS, LSE
Carley Maynard	Durham University
Tiago Moreira	Durham University
John O'Neill	University of Manchester
Rachel Pain	Durham University
Ethna Parker	Durham University
Sujatha Raman	University of Nottingham
Jay Redgrove	Nuclear Decommissioning Authority
Steve Robertson	Durham University
Jayne Sellick	Durham University
Andy Stirling	SPRU, University of Stirling
Fionagh Thomson	The University of Edinburgh
Diane Warburton	Shared Practice
Geoff Whitman	Durham University