sciencewise
EXPERT RESOURCE CENTRE

BIS
Department for Business Innovation and Skills

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sciencewise NEWS

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In this issue

Synthetic Biology: latest update

The participatory phase of the public dialogue on synthetic biology, commissioned by BBSRC (Biotechnology and Biological Sciences Research Council) and EPSRC (Engineering and Physical Sciences Research Council), is now complete.

TNS-BMRB, which has been delivering the dialogue, undertook stakeholder interviews in late 2009. In the first three months of 2010, a total of 12 workshops were run at four locations around the country to explore the views, concerns and aspirations of the public around synthetic biology.

TNS-BMRB has been analysing the stakeholder interviews and discussions from the workshops, and its report will be launched on 14 June. The report's recommendations will be considered in detail by the Research Councils over the summer and will be widely disseminated to other key stakeholders.

Laura Grant Associates has been evaluating the project from the outset and will be studying the impact of the dialogue in six months' time.

The recent announcement by Craig Venter on 'synthetic cells' relates to one aspect of synthetic biology. From our dialogue process, the public have raised a number of questions that will be crucial for the development of the field.

For more information on this project, visit **http://tiny.cc/c6mfr**

EXPLORING THE BOUNDARIES
public dialogue on animals containing human material

Exploring the boundaries: public dialogue on animals containing human material

A newly commissioned programme of public dialogue is now under way in Newcastle and London, with a series of deliberative workshops, focus groups and interviews taking place in May and June.

Led by the Academy of Medical Sciences, and commissioned through the Department of Health with funding from the Sciencewise-ERC programme, the dialogue will explore the public's aspirations and concerns on the use of animals containing human material in medical research. Public participants will have opportunities to engage with scientists and experts in the field, consider the implications of current and future research, and exchange perspectives. In exploring a range of research examples, it is hoped that these deliberative sessions will identify areas of public consensus, disagreement and uncertainty, and uncover particular sensitivities - perhaps around the kinds and quantities of human tissue, or animal species involved. Initial findings will also inform questions put to a nationally representative sample of the public.

Within the UK at least three pieces of legislation are relevant: the Human Fertilisation and Embryology Act (2008), the Human Tissue Act (2004) and the Animals (Scientific Procedures) Act 1986. This dialogue will assist public policy makers in considering how this research takes place within a robust ethical and regulatory framework in tune with public values.

The dialogue will be undertaken by Ipsos MORI, working in partnership with the British Science Association and public engagement specialists Dialogue by Design. Sarah Castell, Head of Qualitative Methods, Ipsos MORI said, "I am delighted that the Academy has chosen us to carry out public dialogue on this important area. We're looking forward to working with the public, as they navigate through the scientific evidence, meet with scientists and other experts, and explore different perspectives."

Speaking in response to the award of the contract on 27 March, a Department of Health Spokesperson said, "It is essential that there is a dialogue with the public on this important area of work. It can be an emotive area of research but one that holds the potential to bring huge advances for healthcare in the future."

The public dialogue is part of the Academy's current study which brings together scientific, safety and regulatory aspects of the use of animals containing human material, with social and ethical dimensions. The dialogue findings will be reported in July 2010, and considered by the Academy's expert working group as part of the study's evidence base, so informing recommendations made for public policy and research needs.

Further information can be found at **http://tiny.cc/w99ct** and **http://tiny.cc/m9jp7**

'We're looking forward to working with the public, as they navigate through the scientific evidence, meet with scientists and other experts, and explore different perspectives.'

Experiment Earth?

Public Dialogue on Geoengineering

Should we support research into geoengineering – the deliberate alteration of our environment - to tackle climate change? This question was debated at a series of workshops during a public dialogue co-funded by Sciencewise-ERC and led by the Natural Environment Research Council (NERC).

The public dialogue on geoengineering aims to assess public opinion on potential geoengineering technologies and how future research on the subject should be directed, conducted and communicated. The dialogue is supported by the LWEC (Living With Environmental Change) partnership and the Royal Society. The research follows an earlier report by the Royal Society which highlighted the potential need for other solutions to tackle climate change.

Emerging results from the public dialogue suggest that participants support the idea of geoengineering research in principle, but have concerns about unknown side effects and the effectiveness of some ideas. People at the dialogue workshops also tended to favour more 'natural' options (e.g. afforestation) and prefer carbon dioxide removal over solar radiation management proposals.

These results came from several different dialogue and engagement activities. At the core of the dialogue process, members of the public from a variety of backgrounds took part in dialogue workshops held in Birmingham, Cardiff and Bodelva in Cornwall. Those who took part had the opportunity to discuss with experts the strengths and weaknesses of nine potential geoengineering technologies. Participants were then asked to give their opinions on research into the technologies, and to identify any social or ethical issues scientists should consider during their research.

Reflecting on their experience of the dialogue, one participant commented that "It's an eye opener because you need to hear both sides of the story, both arguments, the positive and the negative effects."

A selection of the participants from the workshops also attended a final event on 24 April at NERC's National Oceanography Centre in Southampton where they met scientists and senior staff from NERC.

Those present were able to hear and comment on initial findings from the earlier workshops and discuss with scientists how research works in practice, and details of the potential application of some of the geoengineering technologies. In each case they were invited to consider the next stage of research on the technology.

The dialogue also included a number of open access events at science centres in Birmingham and Cardiff, and short workshops for young people in Birmingham and people living in areas at risk from flooding in Cardiff. Science Oxford also hosted an event on the subject, organised by the British Science Association. Finally, an online consultation enabled the project to reach many more people than could be invited to the dialogue workshops.

Alongside the public dialogue, a number of other related activities have taken place. For example, the Science Museum in London hosted a geoengineering-themed 'lates' event sponsored by NERC at the end of March.

The next steps for this project will be to prepare a report summarising the findings for the dialogue, which will be published later this year.

For more information, visit **http://tiny.cc/89gyp**

To see a video from the dialogue, go to: **http://tiny.cc/l9e2m**

Geoengineering technologies

- Afforestation
- Air Capture
- Biochar
- Cloud Whitening
- Iron Fertilisation
- Liming Ocean
- Mirrors in Space
- Sulphate Particles
- White Roofs

Ethical dimensions in Sciencewise-ERC

With memories of 'Climategate' still fresh, and concerns over the working of the Intergovernmental Panel on Climate Change, there couldn't be a better time for some reflection, and to ask ourselves: how much does the public trust the sciences, and what can we do to continue to build public confidence?

Sciencewise-ERC dialogues always focus in on social, ethical, risk or governance issues, but are there consistent messages in what the public has had to say about science?

The Science and Trust Expert Group, convened by BIS, chaired by Tony Whithead (Government Office for Science) and Aileen Allsop (VP, AstraZeneca), evolved from the 2008 Science and Society consultation and its subsequent analysis. This Group was one of five, and had a remit to examine issues around trust and governance of science. The group felt that, to strengthen its evidence base, it would be an opportune time to reflect on existing lessons and evidence from Sciencewise-ERC dialogues. After all, the numbers of people involved mean that there is a strong depth of available insights. That review of lessons from Sciencewise-ERC projects revealed several common themes, and provided a vivid counterpoint to other, more quantitative evidence from the UK and abroad. The full report, published in March 2010, can be found at **http://tiny.cc/k3mla**

The evidence from the 13 projects[1] which had completed at the time of this synthesis showed that people were likely to be broadly positive about developments in science and technology that promised gains in choice, quality of life, health, longevity, convenience, time-saving and reduced environmental impact. However, potential impacts on freedom, privacy, social equity, vulnerable groups such as the mentally ill or very young, or on 'natural and human values' were regarded with varying degrees of suspicion or hostility.

Three common lessons about the public participants' attitudes to science and policy were identified.

- First, they called for science to serve a 'social good', which suggests that public participants see the Government as playing an important part in shaping the social purposes of science and technology
- Second, the public was uncertain of the Government's ability to manage risk, uncertainty, and regulation. The public also has little trust and confidence in the resilience of Government to stand firm against perceived vested interest in industry. It was also concerned about the role of private ownership in research and development
- Third, there was consistent demand (from those who had experienced public dialogue) for more open discussion and public involvement in policy-making relating to science and technology. The challenge for Government is to trust the public's ability to understand the issues and transmit these views meaningfully to upstream policy discussions. It also needs to find ways to incorporate members of the public directly in these discussions - in a cost effective manner - and open up decision-making processes to wider public scrutiny

Some of these themes, especially around better communication of risk and uncertainty, are key to understanding the main aspirations and actions outlined by the Science and Trust Group's report, and indeed the group's overarching aspiration "to enhance society's capabilities to make better-informed judgements about sciences and their uses".

The mechanisms for involving the public cost-effectively in policy debates and transparency initiatives will be a challenge for policy makers, scientists and the business community for years to come.

To comment on the work of the Science and Trust Expert Group or see the full Ethical Dimensions in the Sciencewise-ERC report, go to: **http://tiny.cc/jhqro**

1. Projects were – Risky business, Trustguide, Nanodialogues, Nanodialogue Engagement Group, Democs, Community Exchange, Drug futures, Sciencehorizons, Hybrid and chimera, Stem cell, Forensic use of DNA, Industrial Biotechnology and the Big Energy Shift.

Focus on Experts

The Sciencewise-ERC's Guiding Principles for Public Dialogue in Science and Technology[2] require experts to take part in public dialogue. A great deal of attention has been placed in the past on the public participants and the processes by which they are engaged in a dialogue. Somewhat less attention has been given to the reasons why experts are involved and the process by which they are recruited, and yet their input can be a key factor in whether the dialogue is a success or not.

As part of research by Sciencewise-ERC into six key strategic issues in public dialogue, a study of **The use of experts in public dialogue**, undertaken by our Dialogue and Engagement Specialist Suzannah Lansdell offers guidance on how to make the best use of 'expert' advice in public dialogue and within the wider policy-making process.

We asked two experts who were involved in the recent Synthetic Biology dialogue, **Professor John Ward**, Professor of Molecular Microbiology and Principal Investigator of Synbion, one of the 'Networks in Synthetic Biology', and **Professor Paul Freemont**, Co-director of the Centre for Synthetic Biology and Innovation at Imperial College London, about their participation and experiences of the dialogue.

Describe the role you took in the dialogue session

John Ward: I was invited to a workshop to give a short talk on what I did in my research and what Synthetic Biology is, and might do, to benefit us all. There was time for questions immediately after my talk, which were quite wide ranging and pertinent. I also joined in with some of the small discussion groups, and tried to answer questions. The day really kept me on my toes.

Paul Freemont: I attended the final workshop, so the group had already been exposed to the concepts of Synthetic Biology. My role was to make initial comments on several films shown and be present at breakout sessions to answer any queries or clarifications.

What did you find most valuable from your involvement in the dialogue workshops?

JW: Having to describe both my research and that of others in words that the general public can understand is a challenge. It's easy to slip into jargon that even other scientists don't understand, so thinking carefully to describe Synthetic Biology in clear and straightforward terms was difficult at first. The participants latched on to the ideas in Synthetic Biology very quickly and it was good to hear what they thought were the most important challenges that we should be focusing on.

PF: These dialogues always make me acutely aware of the privilege I have in being able to carry out exciting public-funded scientific research. The public are extremely keen to learn about technology and science and, in particular, how it could impact on their lives.

> 'I am much more appreciative of the value of public dialogue and with face-to-face meetings, it's easy to discuss quite complicated scientific research.'

In what way did the experience affect your views in respect of your scientific work and how the public is able to deliberate on these issues?

JW: It's made me look at some of the work I am doing and planning, and think about the implications of it. There are some big challenges in the world today and Synthetic Biology could address some of these. I am much more appreciative of the value of public dialogue and with face-to-face meetings, it's easy to discuss quite complicated scientific research. If the public have the facts and the science explained in ways that they can understand, then they are able to have informed judgements on issues of Synthetic Biology.

PF: It has made me more aware of my responsibilities to communicate more of my research in a way that is understandable and meaningful. It continually surprises me that we have an extraordinarily intelligent general public, where high level debate can be carried out on the most complex of issues.

To read the interview in full, visit **http://tiny.cc/pijbt**

Copies of the full research report and others in the series, are available at: **http://tiny.cc/exo6y**

2. Guiding Principles: **www.sciencewise-erc.org.uk/cms/publications/**

Low Carbon Communities Challenge: an update

The LCCC project is now well underway and the 22 communities have been busy working on their engagement plans which will map out how they are going to engage with their wider communities in the project. This is being carried out with help from the communities facilitators.

Ten communities have been sent a video camera to enable them to undertake interviews with a range of different people involved in the project, to record key events such as the building or launch of installations and to keep a video diary of the project's highs and lows. The footage will be taken between now and March 2011 and will be edited into mini-films which will be available on the LCCC website as and when they are completed.

The project is also accredited as part of the Living With Environmental Change programme.

For more information on this project, visit **http://tiny.cc/h1b0v**

Dialogue Bulletin
the latest dialogue news and views

Sciencewise-ERC's new monthly 'Dialogue Bulletin' features the latest news, views and developments in the field of public dialogue.

Read the first issue which includes an interview with Professor Kostarelos, Chair of Nanomedicine and Head of the Centre for Drug Delivery Research at the School of Pharmacy, University of London. The interview captures his thoughts on communicating nanotechnology to the public and the opportunities offered by science-based computer games.

http://tiny.cc/ehgpk

Sign up to receive the Dialogue Bulletin and other Sciencewise-ERC updates straight to your Inbox at **http://tiny.cc/8gohv**

A debate: The Experimental Society

On 28 June, The Royal Society, in partnership with Sciencewise-ERC, is hosting a major debate at the South Bank Centre in London on **The Experimental Society - What happens when evidence, uncertainty and politics collide?**

Scientists were once imagined 'speaking truth to power.' Today, they are more likely to be accused of playing politics. High-profile controversies surrounding the University of East Anglia's hacked e-mails, the Intergovernmental Panel on Climate Change and the dismissal of Professor David Nutt as a Government drugs adviser highlight the sometimes uneasy relationship between science, politics and the public.

The Royal Society has for 350 years defended the importance of evidence, scepticism and experimentation. How do these principles translate to 21st century politics, when countless decisions rest on the robustness of scientific advice? Can policy makers improve the way they deal with scientific uncertainty? How much scepticism and experimentation can the public handle?

Speakers will be:

- Lord Martin Rees, President, The Royal Society
- Lord John Krebs FRS, Principal, Jesus College, Oxford and Chair, Royal Society Science Policy Advisory Group
- Professor Sheila Jasanoff, Pforzheimer Professor of Science and Technology Studies, Harvard University
- Professor David Nutt, Professor of neuropsychopharmacology at Imperial College London and Chair of the Independent Scientific Committee on Drugs
- Professor Michael Hulme, Professor of Climate Change at the University of East Anglia and author of *Why we disagree about climate change*
- Dr James Wilsdon, Director of Science Policy, The Royal Society (chair)

The debate will run from 6.00–7.30pm, doors open at 5.30pm.

If you would like to come along, please email **science.policy@royalsociety.org** with '28th June Debate' in the subject line.

This event forms part of **See Further: The Festival of Science + Arts**, a unique ten-day festival to mark the 350th anniversary of the Royal Society through a host of cross-disciplinary collaborations, scientific and artistic events.

http://seefurtherfestival.org/

Departmental Dialogue Support

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Dialogue training sessions have been designed specifically for those with a responsibility for, or involvement in, national science and technology policy making. This includes central Government and its agencies, and executive, advisory and non-departmental public bodies.

Held in any department, these free sessions help policy makers to really understand the dialogue process and the benefits it can offer them, as well as identifying potential areas for public dialogue.

Run on a date and time to suit, departmental dialogue sessions are tailored to a department's individual characteristics and needs, targeting the issues which are specific to that department. Participants can also make use of one-to-one time with one of our Dialogue and Engagement Specialists. Government departments that have taken part include the Department for Environment, Food and Rural Affairs (Defra), the Department of Energy and Climate Change (DECC) and more recently, HM Treasury.

Could your department benefit from a departmental dialogue session?

If you are interested in Sciencewise-ERC visiting your department, please contact **enquiries@sciencewise-erc.org.uk**

Upcoming events

The Times Cheltenham Science Festival

Come and see us at the festival! Sciencewise-ERC will be holding **two public dialogue sessions on 9 and 10 June** focusing on the Low Carbon Communities Challenge. For more information on the festival, visit **http://cheltenhamfestivals.com/science/**

Summer Science Exhibition

The Royal Society's annual Summer Science Exhibition brings teams of researchers at the cutting-edge of science and technology to London. 2010 is the Royal Society's 350th anniversary and, to celebrate, the Society is holding the Exhibition at the Southbank Centre in London from **25 June to 4 July 2010** as part of **See Further: The Festival of Science + Arts**. Find out more at **http://seefurtherfestival.org/**

Civil Service Live

Civil Service Live will be taking place this year for three days on **6 to 8 July 2010** at London Olympia. For further information, visit **www.civilservicelive.com**

British Science Festival

This year the festival will be visiting Birmingham from **14 to 19 September**. Many events will be taking place on Aston University campus and throughout various venues across Birmingham. For more details visit **www.britishscienceassociation.org/web/BritishScienceFestival/**

The Sciencewise-ERC, funded by the Department for Business, Innovation and Skills (BIS), helps policy-makers commission and use public dialogue to inform policy decisions in emerging areas of science and technology. It consists of a comprehensive online resource of information, advice and guidance, together with a wide range of support services aimed at policy-makers and all the different stakeholders involved in science and technology policy making, including the public. The Sciencewise-ERC also provides co-funding to Government departments and agencies to develop and commission public dialogue activities. For further information please log on to:

www.sciencewise-erc.org.uk **Email:** enquiries@sciencewise-erc.org.uk **Helpline:** 0870 190 6324

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