

# Centre for Science and Policy

The Sciences and Technology  
in the Service of Society

Second Annual Report (2010)

December 2010



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The interface between good science and good policy making is important, complex and not well explored. Today's governments face more complex issues and higher risks, needing not only strong and interdisciplinary sources of advice but advisers who understand how policy works and can communicate effectively. CSaP is a great opportunity to use Cambridge's own strengths and considerable convening power both to engage scientists with policy makers and to explore how to make the processes that govern that interface more efficient.

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*Professor Bob Watson, Chief Scientific Adviser,  
Department for Environment, Food and Rural Affairs*



## Foreword

### Dr David Cleevely FREng, Founding Director



#### **The first full year of operation of the Centre for Science and Policy has seen it establish itself as a unique and effective voice in the dialogue between scientific research and public policy in the UK.**

Much has happened since our 2009 report, both in the policy and academic communities that the Centre links together, and in the Centre itself. Controversies over Professor Nutt's sacking as the UK government's drugs adviser – closely followed by the "Climategate" affair at the UEA and the Himalayan glacier episode at the IPCC – pushed the issues of scientific advice in policy making on to the front pages; not since the BSE crisis had the issues of reliable evidence and its translation into policy been so topical. A new government took office in the UK voicing strong commitments to evidence-based policy, and defending the science budget against the worst of the cuts – while also highlighting the need for research to have real impact in society and the economy.

In this environment of sometimes shrill headlines and considerable political upheaval, the Centre has set about its quiet work of informing policy with the best scientific insights. We have made the deliberate choice not to do so through media headlines or doorstep-thick reports. Our mission is to create environments where policy makers and scientists can talk and listen to one another, frankly and at length, without every assertion being treated as a soundbite or a barbed aside; to build bridges between the policy world and the scientific community; and above all to develop a lasting network of relationships which will sustain the dialogue.

I am delighted to welcome Dr Chris Tyler as Executive Director. Chris took up his post in May 2010, having previously been science adviser to the House of Commons Science and Technology Select Committee. Chris's arrival has been a key step in building the network between the scientists and engineers in Cambridge and the policy makers in Whitehall and Westminster; both his experience and his enthusiasm have been enormously valuable in bringing the parties together, identifying the issues around which they engage, and understanding how they can communicate most effectively. Under Chris's leadership the Centre is already making its mark on the ways in which policy makers use scientific evidence, and on the ways in which researchers think about policy consequences.

I am also hugely excited by the longer-term opportunities that are being opened up as scientists and policy makers come together. On the one hand, the Centre has begun ambitious new work on a research programme addressing how scientific research contributes to improved policy making. On the other, discussions around creating a Masters in Public Policy offer enormous potential to take the Centre's agenda to the next stage, into the training and development of future generations of policy leaders. I am delighted to have the continuing opportunity to play my role in these developments.

*David.*

# The Centre in 2010

## Dr Chris Tyler, Executive Director



**It is an exciting time to have joined the Centre for Science and Policy, and a great privilege and responsibility to have been entrusted with its leadership.**

The Centre has made terrific progress this year, creating a meeting of minds between the policy and research worlds around many of the key issues that society faces, from biodiversity to behaviour change, and from economic and social innovation to genomic medicine. This report summarises our main activities in the last twelve months, and more importantly their outcomes – both making policy-makers aware of evidence and research bearing directly on their decisions, and also helping researchers understand the policy implications of their work.

The Centre has gained, in a very short time, a reputation for both value and excellence. By bringing leading experts and policy makers together in innovative and interesting ways, the Centre is already playing a key role in forging relationships that are strategically important for the formulation of good public policy.

The Centre was created to meet a clear and urgent need to provide additional channels for external, independent scientific and engineering advice to enter the policy process. The extensive consultation process undertaken in 2009 and the first quarter of 2010 identified a gap in responsive, objective, multi-disciplinary and multi-institutional advice, and clarified our role: to promote engagement between researchers and policy professionals in a networking capacity.

Our programmes of interest groups, workshops, seminars, lectures and fellowships are designed not only to provide a platform for research to inform public policy, but also to help researchers learn about the policy process and how best to engage with it. In 2010 we have run five Centre Interest Groups, eight Policy Workshops, four Distinguished Lectures, two Associate Seminars and a Professional Development Policy Seminar, and hosted our first eight Policy Fellows.

As well as launching of all the major components of our programme, this year has also seen us begin the process of engaging with policy professionals in industry, in order to complete our coverage of the government-academia-industry triangle. We have also started to build towards a research programme on the interaction between science and policy, by working with the science and policy communities to establish an agreed research agenda.



The Centre is run by a small staff (two full-time employees plus the ad hoc involvement of the Founding Director and two advisers). Despite the small size of the core team and the lean basis on which it operates, the Centre is acknowledged in both Cambridge and Whitehall as punching well above its weight. In the words of one of the UK's leading academics in the science and policy field, Professor Ben Martin, "with science policy becoming ever more important to our future, the establishment of CSaP is extremely timely. It is uniquely positioned to bring together leading scientists, policy makers, entrepreneurs and others to consider how more effective policies for science, technology and innovation can be developed and implemented."

Or, as the Chief Scientific Adviser at the Department for Environment, Food and Rural Affairs (the government department generally considered the most advanced in the use of scientific evidence in policy making) put it: "Today's governments face more complex issues and higher risks, needing not only strong and interdisciplinary sources of advice but advisers who understand how policy works and can communicate effectively," noting also that the Centre represents "a great opportunity to use Cambridge's own strengths and considerable convening power both to engage scientists with policy makers and to explore how to make the processes that govern that interface more efficient."

Measured by such comments from the senior figures in the constituencies that it supports, and by the performance indicators defined in our 2009 report, the Centre is firmly on track. The numbers (and levels of activity) of Centre Interest Groups and Associates have met or exceeded those set out in our plan for the year. Most of all, the concept of Visiting Fellowships has evolved into the highly successful Policy Fellowship programme, creating great interest and clear impact among both policy professionals (in government and industry) and researchers – in the words of the President of RAND Europe, "an outstanding initiative!"

During 2011 we will introduce a further measure of success, based on following up with Associates to assess the longevity and usefulness of the relationships that the Centre has helped to broker.



In 2011 the Centre will continue its core activities, supporting its existing Centre Interest Groups and their workshops (as well as the emergence of new CIGs in line with demand from researchers and policy makers); delivering Policy Workshops and Professional Development Seminars; recruiting Policy Fellows and connecting them with researchers; growing the Associate Network and Fellowship; and running lectures and seminars at which the network will come together to debate and discuss the key issues in science and policy. We look forward to the challenges of expanding our programme to reach further into both the academic and the policy communities, while also consolidating the long-term financial basis on we operate by seeking new sources and models of funding.

In conclusion, I would like to take this opportunity to record our gratitude to all our Associates, Associate Fellows, and Policy Fellows, and to the members of staff, Executive Committee, and Advisory Board, who have made such a contribution to the Centre's success in 2010. Many thanks to you all.

*Chris*

# Centre Interest Groups and Group Engagement Activities

**The Centre for Science and Policy is a networking organisation. The network coalesces into Centre Interest Groups (CIGs), made up primarily of academics from a range of disciplines with an interest in a common theme. Subject areas are determined both in response to demand from policy makers and also through the identification of key areas by researchers.**

CIGs are at the core of the Centre's strategy. They are designed to evolve over time, bringing in diverse players, including policy professionals, and to provide a context in which lasting relationships between researchers and policy makers can develop. The following Centre Interest Groups have been most active in 2010:

## **The Value of Ecosystems**

This Group brings together conservationists, economists, epidemiologists, modellers, physicists, zoologists, and experts in the evaluation of risk, to provide insight on how to value ecosystems for senior policy makers across government. The Group's first workshop (for the Department for Environment, Food and Rural Affairs and the Department for International Development) was held in 2009; a second workshop, designed to communicate across Government the understanding of biodiversity and its value to society, was held in October 2010.

## **Innovation**

As cuts to public expenditure begin to bite, demand for public services and economic growth remains as high as ever. Pressure to deliver more for less will increase over the coming years, and this will require innovation in the way that public services and the economy are provided, supported and managed. The Innovation CIG brings together researchers and policy professionals to provide insight into how new approaches to innovation can help deliver growth and a better society. Its first workshop was held in November 2010, with a wide range of departmental representation, including the Department for Communities and Local Government, the Department of Health, the Department for Transport, the Department for Business, Innovation and Skills, the Ministry of Defence and the Government Office for Science.

## **Behaviour Change**

The coalition government in the UK is putting an increasing emphasis on encouraging favourable behaviours on the part of both individuals and communities. This CIG has come together around behaviour change science, bringing to bear the latest thinking on evidence about what influences behavioural patterns and decision making to guide public policy. The Group's first workshop took place at the invitation of the Department of Energy and Climate Change in September 2010.

## **Genomics**

Working together with the Public Health Genomics (PHG) Foundation, CSaP co-sponsored a series of stakeholder workshops in early 2010, culminating in the publication of an independent expert response to the House of Lords Select Committee report on Genomic Medicine, and in a meeting in May 2010 with Professor Sir Mark Walport, Director of the Wellcome Trust, which brought together researchers and policy makers to discuss the implications of rapid advances in human genomics.

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**It was fascinating to hear the differing perspectives of civil servants and expert academics on matters of common interest. The academics have the deep knowledge of the issues and problems; the civil servants have to convert this knowledge into workable policy proposals for ministers and the wider public, whilst meeting multiple wider objectives.**

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*Graham Pendlebury, Director, Environment and International, Department for Transport*



## Science and Policy Studies

This CIG has come together to explore the complex relationship between science and policy. It has recently launched its first programme, an ambitious attempt to find consensus amongst the various scientific and engineering institutions, companies, charities and government, on what are the key unanswered questions about the relationship between science and policy. This programme has begun with a call for questions; in early 2011 a voting process to identify those questions most worthy of discussion will culminate in a two-day symposium in April.

The Centre Interest Groups convene the events that form the core of our **group engagement activities**. The Centre currently uses two workshop formats, both of them operating under the Chatham House Rule:

- **Policy Workshops**, based on a 'show and tell' format, but with an emphasis on discussion and interaction
- **'Quickfire' Workshops**, focusing on idea generation, akin to brainstorming sessions but with more structure and preparation.

The Centre is also planning to experiment with other formats, including intensive peer-review workshops and horizon-scanning events.

Workshops typically take place in London (to attract the policy professionals) and usually comprise up to eight policy makers and a similar number of academics, plus CSaP staff and facilitators. Feedback from policy professionals has indicated that these workshops have been "timely", "helpful", "the start of an essential dialogue" and "an extraordinarily effective use of time". Most importantly of all, each government department for whom we have run a workshop has requested follow-up events.



# Policy Fellowships Programme

Alongside the group engagement activities described above, the Centre has this year made great strides in developing its primary mechanism for promoting relationships through one-on-one interactions, the Policy Fellowships Programme.

Policy Fellows are policy professionals who spend an initial five days in the University meeting between twenty and thirty leading academics, chosen for the relevance of their research interests, on a one-to-one basis. They gain a refresh in their policy specialisms, develop a network of researchers on whom they can call for advice, and become hubs for future engagement within their departments.

During the following two-year tenure, the Policy Fellow attends Centre events, may request a workshop to be held to discuss a specific topic with members of CIGs (both researchers and policy makers), and has the opportunity to give lectures or seminars in the University, for undergraduate or graduate students pursuing courses or research in relevant areas. In these ways the Centre seeks to maximise the mutual learning opportunities and knowledge-sharing in both directions.

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Spending time with the Centre provided me with an excellent perspective on the expertise and research that Cambridge has at its fingertips. My colleagues and I have already followed up with several people having identified clear linkages between our areas of work.

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*Dr Jo Dally, Head of Briefings, Guidance and Secretariat team, Government Office for Science*

During 2010, eight Policy Fellows made their initial visits:

- **Dr Jo Dally**, Head of Briefings, Guidance and Secretariat team, Government Office for Science
- **Dr Bob Sorrell**, Vice President for Public Partnerships, BP
- **Dr Stephanie Hurst**, Deputy Director of Planning Resources, Department for Communities and Local Government
- **Lucia Costanzo**, Head of EU Research Policy in the International Science and Innovation Unit, Department for Business, Innovation and Skills
- **Michael Eaton**, Director of the Public Sector Aggregation Network, Welsh Assembly Government
- **Alice Raine**, Assistant Chief Scientific Adviser, Department for Business, Innovation and Skills
- **Dr Adam Heathfield**, Director of Science Policy (Europe), Pfizer
- **Shad Turney**, Chief Economist, Comac Capital

Feedback from the first group of Policy Fellows has called the programme “immensely valuable... providing real insights that will inform ongoing policy work” and emphasised how it “challenged perspectives on a range of issues and opened up extraordinary fresh insights”. They have also commented on the ways in which “there were some surprising connections made” – it is often the less obviously relevant research areas which provide the most challenging insights.

This programme is also adding value to the University by exposing its researchers to decision makers in government, and providing direct pathways by which their research can have impact on the basis and the development of policy. The Policy Fellows, too, have emphasised how they have been able to “advise researchers on ways of getting more involved with policy – there has been a substantial appetite for this.”

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The Fellowship was an amazing experience. I spent a fantastic week in Cambridge from which I took away a valuable network of contacts and a whole stream of insights on a diverse range of topics. I came in with a particular expectation, but came away with something completely unexpected – the Fellowship challenged my thinking and perspectives on a range of issues, many of which continue to resonate. The whole process was extraordinarily productive.

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*Dr Bob Sorrell, CSaP Policy Fellow and VP for Public Partnerships, BP*

The research topics around which the Fellowships have been based have been many and various. They have included questions such as: What innovative approaches are being developed that might lead to fundamental re-thinking of the ways in which public services are delivered? What approaches exist to understanding customer behaviour in relation to energy efficiency? What solutions are there to the issues of privacy and security raised by the digital economy? How can government policy contribute to creating an “innovation culture”? How can environmental demands (including carbon reduction and climate change mitigation) be made consistent with the demands of economic activity and growth? How can the evidence of social science be integrated with that of the physical sciences to produce a balanced policy? And how, in fact, does policy respond to scientific input (including the issues of science and trust)?

We are grateful to Pembroke College and others for helping us to welcome our Policy Fellows to Cambridge in 2010.

In 2011 we expect to bring between four and six new Policy Fellows to Cambridge each term, including both members of the Senior Civil Service as well as “rising stars”. Those already signed up in the coming months include:

- **Dr Stephen Aldridge**, Director of Strategy and Innovation, Department for Communities and Local Government
- **Graham Pendlebury**, Director, Environment and International, Department for Transport
- **Liz Owen**, Head of Customer Insight, Department of Energy and Climate Change
- **Aphrodite Korou**, Head of Standardisation Policy, Innovation Infrastructure, Department for Business, Innovation and Skills

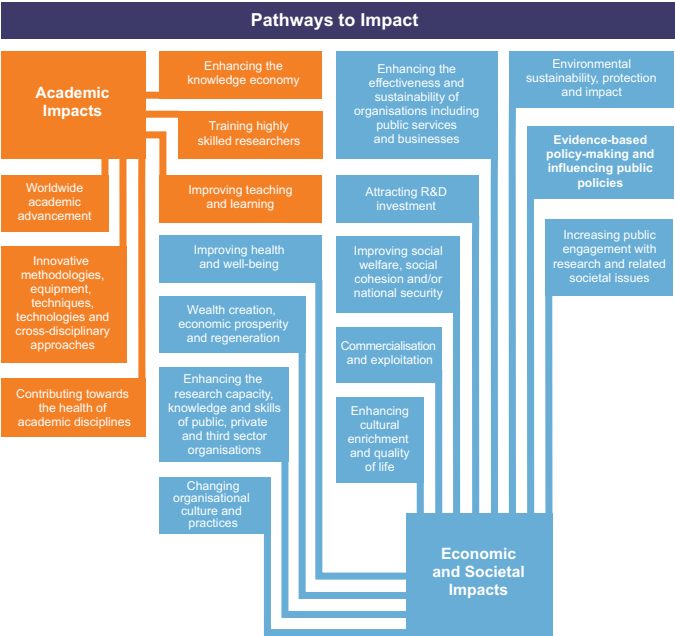
Other potential Policy Fellows with whom the Centre is in discussion include the Director of Science, Engineering and Technology, Home Office; the Head of Research Finance and Programmes, Department of Health; the Principal Research Officer, Department of Health; the Director of Energy Efficiency and Consumers, Department of Energy and Climate Change; the Deputy Director, Innovation Policy, Department for Business, Innovation and Skills; the Deputy Director for Delivery, Department for Work and Pensions; and the Head of Civil Contingencies, Health and Biotechnology, Government Office for Science. It is also expected that the programme will be extended in 2011 to include policy makers from other countries of the European Union.



# Impact

Through its core mission of forging links between researchers and policy professionals, the Centre for Science and Policy provides what the UK Research Councils call a “pathway to impact”.

The partnerships that we build between the academic and policy communities enable researchers to bring their work to bear on public policy making, and in particular to have an impact on evidence-based policy (as shown, for example, in the RCUK taxonomy of pathways):



Although the Centre is only now completing its first full year of operation, already it can point to examples where its activities are providing such pathways, and where the growth of our network is enabling research to have a direct impact on the policy making process.

To take just one example: among the first topics that the Centre addressed was the valuation of ecosystems services (also called “the value of natural capital”). Working together with the Cambridge Conservation Initiative (CCI) and other experts, the Centre responded to the need of government to deepen its understanding of how policy decisions affect the ecosystems on which we all depend. There is a fragile balance between the different elements in many ecosystems, and all too many examples of marginal decisions to exploit ecosystems which appear at first to bring benefits, but which end up in huge net costs. Individuals may benefit in the short term, but societies pay the price in the longer term, particularly in poorly understood systems in which irreversible “tipping points” might be reached..

There are those in government who understand these matters well; but there are others who are less familiar with the issues, but who are nonetheless responsible for policy with a material bearing on the conservation of natural resources. Our first CCI/CSaP workshop took place in September 2009, primarily involving experts from the Department for Environment, Food and Rural Affairs (Defra). At the end of it, the Department’s Chief Economist told us “we will be looking again at how we use this research in developing policy”, and emphasised the need to widen the audience in Whitehall.

In October 2010, therefore, we ran our second event, bringing together policy makers from Defra as well as the Departments of Energy and Climate Change, Communities and Local Government, Education, Transport, and Business, Innovation and Skills, alongside leading conservation scientists, zoologists, economists, engineers and geographers. This second workshop introduced non-specialists across Whitehall to the concept of ecosystems services, drawing out the implications for different policy areas using examples from biofuels, fisheries, farming and urban planning, and covering many controversial questions, such as whether we should eliminate “place” from conservation decisions (if overall ecosystems are maintained, does it matter if a particular location is not conserved?) and whether the concept of “biodiversity offsets” is credible (can we trade off short-term gain vs long-term sustainability?).



Dr Mike Rands – Director of the Cambridge Conservation Initiative, and convener of the Centre Interest Group on the Value of Ecosystems – highlighted how CSaP's paths into the policy world have functioned to bring the best in conservation science to the attention of government. "We have been able to get beyond 'preaching to the converted,'" he said. "Our ecosystems workshops have brought together senior policy advisers not only from the departments which are most familiar with the issues, but also from other departments whose impact on the management and conservation of natural capital is crucial. Through these workshops, and also through one-on-one discussions in the Policy Fellowships programme, we have been able to change the way in which policy makers think about decisions of critical importance when valuing and managing natural ecosystems and the vital services they provide to society."

Similar things can be said about the impact of other CIGs on behaviour, innovation and genomic medicine. Our workshop for the Department of Energy and Climate Change in October, for example, started a dialogue between officials and academics on behaviour and energy efficiency which will continue when senior policy makers from DECC join the Policy Fellowship Programme in 2011. Economic incentives alone are not sufficient to achieve the necessary greenhouse gas reductions. Key questions for researchers include what models other than "economic rationality" might be used to explain or predict behaviour, and how can design influence behaviour and acceptance? As DECC's Head of Science said after the workshop, it represented "the start of an essential dialogue with the academic social science community to help develop practical policies that will deliver the changes that we want to see." Indeed, one strong measure of the Centre's impact is that every government department where we have run a workshop has invited us back for further events and engaged with the Policy Fellowship programme.

Alongside the workshops, the Policy Fellowships programme exposes researchers to decision makers in government, and provides direct pathways by which their research can have impact on the basis and the development of policy. As some of the senior researchers engaged with the programme have said, "I may have fine academic ideas... but it's priceless to be able to test them out on people who have to confront potentially sceptical colleagues and ministers", and "Policy Fellowships have provided a chance to present policy research findings directly to those who would have been responsible for implementing them, and to confirm there is potential future value from conducting innovative policy research in Cambridge."

Our Policy Fellows have also told us about the direct impact of their meetings with leading researchers in Cambridge. One explained how he and his team had been working on a problem for six months, and how in the space of one meeting during his initial visit to the Centre he came face-to-face with the solution. Another emphasised how the discussions provided "real insights that will inform [her] ongoing policy work." All have underlined the importance of building lasting networks, and have emphasised that the initial meetings were important both for the often surprising insights generated immediately and for the connections which can be used subsequently when issues and opportunities arise.

Researchers wanting to know more about how the Centre can support "pathways to impact" in their work, and assist in the presentation of research proposals, should contact Dr Chris Tyler, Executive Director.

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**Technology research impacts the real world. It is satisfying to have the opportunity to interact directly with policy makers, and offer them early evidence of the kinds of future technology that they must factor into their future decisions.**

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*Professor Jon Crowcroft, Marconi Professor of Networked Systems, Computer Laboratory, University of Cambridge*

# Distinguished Lecture Series and Associate Seminars

In addition to our programmes supporting group and one-to-one engagement between scientists and policy makers, we have this year launched our lecture and seminar series, targeted primarily at an audience of academics.

These events are designed primarily to help researchers explore the policy context of their work, and share an understanding of how they can deliver impact from their research. There have been four events in our Distinguished Lecture series:



## **Professor David MacKay: "My first 100 days in Government" (18 January)**

Professor David MacKay, Professor of Physics in Cambridge and Chief Scientific Adviser at DECC, described the role of science in formulating energy and climate change policy, and the environment in which the actors in this process (scientists, civil servants, ministers and media) work together. Professor MacKay highlighted the surprises in his first 100 days, noting particularly the readiness of some in the media to report selectively, inaccurately, or on the basis of spurious sources, and the existence of what he called "invisible walls" between civil servants and MPs other than the few ministers in their home departments. He also observed how cautious civil servants are about discussing extreme cases or scenarios even as hypothetical limits, for fear that such discussions will be picked up and such cases quoted as if they were policy.

Equally striking were the contrasts in timescales in policy making - on the one hand, it can take three years to complete the process of preparing evidence, analysing it, going to consultation with stakeholders and the public, iterating on analysis and consulting again, and finally publishing a policy, whereas on the other hand it can be necessary to respond to questions and challenges in three days. Civil servants must be able to operate in both modes simultaneously. An audience of over 100 took part in an extended Q&A session covering questions of vested interests and lobbying, the source of policy leadership, and the need for behaviour change.



## **Professor Ben Martin: "Science policy research – can research influence policy?" (3 March)**

Professor Martin, former Director of Science and Technology Policy Research at the University of Sussex, led his audience on a whistle-stop tour of the twenty key "steps forward" that have been made in science policy research over the last half century. Drawing on 35 years of his own experience, he highlighted advances in the understanding of innovation, the economic rationale for intervention, the analogies with biological evolution, the role of networks in national systems of innovation, and the "triple helix" (the interaction of universities, industry and government).

He contrasted two persistent linear models - the "science push" model (much favoured by scientists), and the "demand pull" model whereby changes in market demand call forth innovation – and showed how studies of the roots of innovation have supported the "science push" model when very long time-scales (a century or more) are considered, but have favoured "market pull" over shorter periods (20 years or less). He also highlighted the more recent recognition that the process is a non-linear "chain", at once complex, dynamic and interactive.

Professor Martin also considered what has been learned over the years about how research influences policy. Key lessons concerned the moral dilemmas confronting all science policy researchers, who must strike a balance between rigorous objectivity and the need to engage with the practical political context; and the importance of working with the "Level 5" civil servants who do the hard work, and preparing the ground for serendipity - "Luck is what happens when preparation meets opportunity".

In his conclusions, Professor Martin emphasised the complexity of the processes whereby science influences policy, and stressed the need for perseverance: it is wrong to expect many "direct hits", but legitimate to look for evidence of "knowledge creep". The discussion that ensued ranged across

the role of the media in the GM debate; climate science controversies; the differences between the UK model for research funding and other models; the risks of short-termism in decision-making; and whether it helps for policy-makers to have scientific backgrounds. Professor Martin observed how few do, and how the best of them move around rapidly within the policy community; but he also argued strongly that people should move between sectors (industry, government and academia) much more than is typically the case in the UK.



### **Sarah Mukherjee: “Our Easter Island Moment – is it already too late to save the environment?” (7 June)**

Journalist and broadcaster Sarah Mukherjee – former BBC Environment Correspondent – outlined a challenging view of the relationship between the media and political elite. Her core argument was that the relationship between the political system and the media is preventing the UK from getting to grips with climate change. She argued that the UK's political system is not well suited to long-term decision making, and that following the economic crisis, climate change has been sidelined as an issue.

She proposed three reasons for this. Firstly, following the 'Climategate' scandal, the media became less enthusiastic and certain about climate change science, and the public followed suit; since politics follows public opinion (or its proxies, newspaper columnists and focus groups), so climate change has slipped down the political agenda. Secondly, the last thing on the minds of people taking part in focus groups is energy concerns; they are more concerned with things that affect them now, such as health, education, and jobs. Thirdly, NGOs have played a significant part in slowing down action; when international climate change negotiations started, there were relatively few people present, but the meetings now are inoperably large. The NGOs attended Copenhagen in such large numbers that they effectively collapsed the meeting from the inside.

Sarah concluded by suggesting that the root cause of the problem was the "deadly embrace" of the political and media classes. To break this embrace, our education system needs to refocus so that it produces a population of individuals who are equipped to understand the complexity of the scientific process and the kinds of risks and trade-offs that issues such as climate change present.



### **Dr Evan Harris and Dr Julian Huppert: “Science in Parliament” (19 November)**

The fourth lecture was given by two of the leading proponents for science and evidence-based policy making in Parliament over the past decade, discussing the challenges and rewards of campaigning for science in Parliament and the successes and failures for evidence-based policy making.

Dr Harris applauded the move towards evidence-based policy, but warned against this simply becoming part of parliamentary rhetoric. There is a need for real scientists to prevent abuse of science in Parliament, but while ministers are so easily able to fire their advisers, there is a risk that the best minds in science will stay away. However, the Science and Technology Select Committee has shown what can be done, with abortion and homeopathy reports explaining to MPs for the first time what makes some evidence better than other evidence.

Dr Huppert divided MPs into three camps: those who understand science, those who don't, and those who are actively against it. He discussed the need for a scientific adviser to the Treasury; the role science has to play in the economy; the need for improved teaching; and concerns about an immigration cap on skilled workers. He concluded that some progress is being made – in particular, government is beginning to understand the role innovation has to play in the country's future.

In a lively Q&A session, a packed audience of 150 explored how the voices of scientists could be better heard in Parliament. It was generally agreed that we will never have an overwhelmingly scientific Parliament, but that the best way forward is to ensure that as many politicians as possible understand the scientific method and, if not, that they will seek advice (or at least, respect the evidence).

The Centre also co-organised (with Darwin College) a lecture by **Dr Miles Parker: "Evidence based policy making – how can government be an intelligent user of science?"** (14 May). Dr Parker, Deputy Chief Scientific Adviser at Defra, argued for a fundamental change in the way in which Whitehall and Westminster approach evidence-based policy making. This was the first in a series of jointly organised lectures which will bring the Chief Scientific Advisers of government departments to Cambridge during 2011, including **Professor Christopher Whitty** (CSA at the Department for International Development) and **Professor Jeremy Watson** (CSA at the Department for Communities and Local Government).

During 2010 the Centre also launched its **Associate Seminar Series**, which offers Associates opportunities to network and engage with individuals from different disciplines and fields, and to discuss together key issues in the relationship between science and policy.

The first seminar was entitled **"How should the policy impact of scientific research be measured?"** (27 January). Speakers included Dr Jonathan Grant, President of RAND Europe; Dr David Sweeney, Director of Research, Innovation and Skills, HEFCE; Professor Bob Watson, Chief Scientific Adviser for Defra; and Professor Andy Parker, HEP Group, Cavendish Laboratory, University of Cambridge.



The second seminar, **"Working on the inside"** (14 June), explored the opportunities for scientists to work inside policy making. Discussions focussed on what the scientists working inside government have learned about "how it really works", about their research and its relevance to the improvement of public policy. The seminar was chaired by Professor Lynn Gladden, Pro-Vice-Chancellor for Research; panellists were Dr Rob Doubleday (ESRC Policy Placement Fellow at the Government Office for Science); Professor Michael Kelly (former CSA in the Department for Communities and Local Government); Professor Frank Kelly (former CSA in the Department for Transport); and Dr Eoin O'Sullivan (Senior Policy Fellow, Institute for Manufacturing). The Centre will hold a joint Associate Seminar with GO-Science in early 2011 on a similar topic, addressing the perception in both Whitehall and Cambridge that the pipeline of scientific advisers needs to be improved.





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Cambridge is supremely well positioned to help Government become aware of emerging issues but needs itself to develop the skills to catch the attention of policy makers, which are not simply about telling but also about listening and understanding. CSaP is just the right initiative to make a difference in this communication.

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*Dr Miles Parker, Deputy Chief Scientific Adviser,  
Department for Environment, Food and Rural Affairs*

# Professional Development Seminars

**Many key posts in government are held by people who spend most of their careers as academics. Such advisers are brought into the civil service because of the knowledge that they bring to policy issues, even if they do not have a practical knowledge of policy. The transition from university academic to government civil servant can be quite a challenge.**

Recognising that it has a role in developing the skills of scientists in understanding and communicating the implications of their research, the Centre is pioneering a Professional Development Seminar format for exposing early career researchers to the policy world. The goal is to help researchers understand how they can engage most effectively with policy, and to prepare them for careers that might involve significant roles as policy advisers.

The pilot seminar, held in November 2010, introduced 38 early career researchers to the possibilities and realities of engaging with policy. Participants represented a range of disciplines and backgrounds, and the panel brought together physical and social scientists and engineers as well as career civil servants, including Professor David MacKay (DECC), Dr Miles Parker (Defra), Dr Rob Sullivan (BIS), Professor Michael Kelly (formerly CLG), Dr Tim Chatterton (ESRC Fellow at DECC), Dr Jo Dally (GO-Science), and Dr Jason Blackstock (Fellow at CIGI).

The seminar gave participants the opportunity to learn from civil servants and academics who have been involved in public policy about their reasons for becoming involved, and the rewards and frustrations they had experienced. It discussed how policy is made, the strengths and weaknesses of the process, and the constraints under which policy makers operate. Key themes included the opacity of the policy making process, differences in the way research is done in the civil service and universities, the need to tailor communications for different audiences, and the importance of timing.

In particular, the seminar heard how communication between academics and policy makers must be tailored to the style of government. Policy advisers, ministers and MPs want concise, crisp and clear advice. Above all, “advice is only useful if it hits the right timing” – a week early or a minute late is no good. Navigating the system requires getting used to the notion of different timescales, from glacially-paced international issues to things that have to be delivered to the minute. The seminar concluded with advice to researchers interested in becoming involved in the policy process – particularly by building networks. ‘Ways in’ include secondments, writing letters to MPs, and participating in calls for evidence.

During the coming year the Centre plans to build on the success of this pilot event, by rolling out a programme of seminars aimed at researchers at different levels of experience, and various levels of interest in the policy process. In this way the Centre will make a major contribution to developing the skills of scientists in presenting the policy implications of their work – a powerful combination with the opportunities that we provide for delivering the results of research in ways and places where it can have real impact.

“

**Cambridge has always punched well above its weight in terms of its impact on government, and the Centre for Science and Policy has a key role to play in extending this influence. Together with the other leading Universities, it has a great opportunity not only to promote policy-making on strong evidence-based foundations, but also to educate and develop the next generation of scientific advisers, policy makers, and indeed politicians.**

”

*David Howarth, Reader, Department of Land Economy, University of Cambridge, former MP, and UK Electoral Commissioner*

# Proposal for a MPhil Degree in Public Policy

**Responding to increasing demand for qualifications for those working in the service of the public – particularly those in advisory, analysis or policy making positions – the Centre for Science and Policy, together with Professor Andrew Gamble (POLIS) and David Howarth (Land Economy), have jointly proposed the development of a Cambridge MPhil degree course in Public Policy.**

Because of the University's well established relationships with Whitehall and Westminster and its exceptional research and teaching facilities in the social, political, engineering, technological and environmental sciences, it is in a powerful position to provide courses specifically tailored to the needs of current and future policy makers. Furthermore, the proposed course will enhance existing collaboration and opportunities for much-needed multidisciplinary thinking in all areas of policy making.

The proposed one-year course will provide a broad and balanced foundation in public policy by teaching background and practical skills in the areas of politics, ethics, governance, law, economics, business, social science, media, science and engineering. It will include modules on politics, institutions, legislation, economics, policy analysis (data collection, modelling, scenario setting etc), management, leadership and ethics, and media/communications. Also being developed specifically for the new course are a 'Policy Circus', Horizon Scanning programme and a Policy Analysis Exercise, a high-pressure, practical group project that provides real life experience in the process of making and delivering policy.

The Centre is grateful to Nat le Roux and The Constitution Society for providing initial funding to develop these proposals. A Steering Group and a Development Board have been established, and information gathered on comparable courses elsewhere in UK and abroad (as well as public policy related courses already existing in the University). The core modules for the course have been defined, and key personnel within the University consulted to establish an outline of the course and a timetable for its development. Core teaching staff and a Programme Director are currently being recruited. We aim to launch the course in 2012.



# Research into the Relationship between Science and Policy

Through its highly successful engagement activities, the Centre has rapidly achieved a reputation, in both government and academia, as the most effective meeting-point for researchers and policy makers. As a by-product of this, it has also attracted the involvement of leading practitioners interested in studying and improving the processes whereby science influences policy. Consequently the Centre has established itself as the focus of activity around which a ground-breaking research agenda in this area can now be generated.

The relationship between science and policy is critically important both for the sciences broadly conceived and for policy formulation and good governance, but there are major unresolved issues about how the relationship actually functions. The Science and Policy Studies CIG – convened by Professor Susan Owens, Dr Rob Doubleday, Professor Keith Richards and Professor Bill Sutherland – aims to help set a new research agenda by running a programme to identify the key research questions about precisely how science influences policy, and how expertise is best engaged.

The CIG's programme, launched in September 2010, is an ambitious attempt to find consensus amongst the various scientific and engineering institutions, companies, charities and government, on what are the key unanswered questions about the relationship between science and policy. The programme seeks to include questions about the science-policy relationship as observed and conceptualised, as well as more normative questions about 'how it ought to be'. The only condition is that questions should be capable, at least in principle, of being addressed through research. The final list of questions will help establish a major research agenda in this increasingly important field.

The process – based on an approach that has previously been used, with considerable success, by Professor Sutherland in the field of biodiversity and elsewhere – will involve a call for questions, a voting exercise to identify the questions worthy of discussion, and a symposium in April 2011 to agree a final selection. The outcome will be not only a major publication, but also a consensus-derived set of questions that will form the basis of a viable research agenda.

Some indicative questions have been formulated as possible starting points for discussion:

- When and under what conditions is evidence to inform policy considered 'sound'?
- What role does trust between experts and policy makers play in deciding what counts as reliable evidence?
- When grappling with complex issues in democratic societies, does the promotion of evidence-based policy inevitably slide towards technocracy?
- How successful is horizon scanning in identifying forthcoming issues?
- Are the standards of evidence in evidence-based policy universal, or do they depend on the kinds of sources, and if so, how?
- How useful is the notion of "public understanding of science", with its presumption of a "deficit model" in the public?
- What, ultimately, is the evidence for the efficacy of evidence-based policy?





“

Science and policy interact in complex ways, and a deeper understanding of this relationship is an urgent and non-trivial challenge. The strategic position of the Centre for Science and Policy makes it an excellent place to develop and take forward a programme of research and other activities in this area. In doing so, it will help build connections between cutting edge research and public policy, in both national and international settings.

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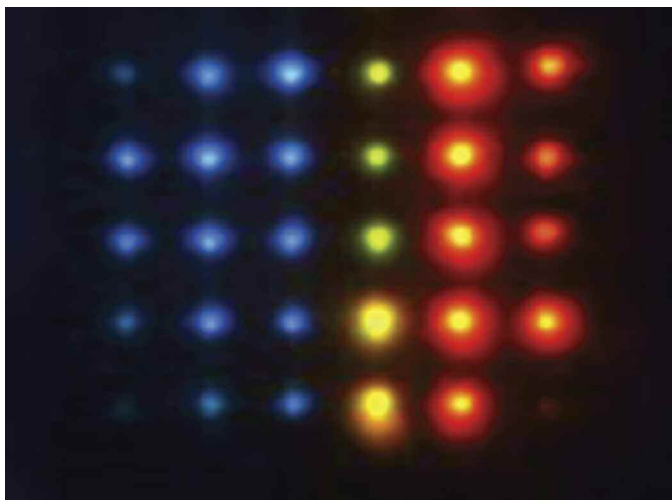
*Professor Susan Owens, Head of Department of Geography,  
University of Cambridge*

# Consultation and Governance

**In order to maintain its links with its key constituencies and keep up-to-date with the evolving needs of policy making, the Centre has continued with the programme of consultations with which it launched its activities in 2009.**

In particular, the Centre conducted a series of high-level Whitehall Consultations in the first quarter of 2010. As well as introducing our activities to a wider group of Director-level civil servants across many Departments, these discussions highlighted many important strategic issues for the Centre:

- The Centre will work best by building a network based on lasting relationships between people, and by providing a forum for them to meet.
- We should exploit the convening power of Cambridge, and experiment with different approaches to workshops, seminars and secondments.
- We should complement existing networks for scientific advice by providing opportunities to open up different perspectives in the early stages of policy formulation.
- We should recognise that incorporating science and engineering into policy is a messy, two-way, and highly non-linear process; we must build networks and interactions which accommodate and use the nature of the process.
- Sometimes an issue is science led; sometimes there is an identified need among the policy makers; but sometimes the important issues will arise in the interaction between the two.
- Just as it is natural for policy makers to pass proposals through economists and lawyers, it should be natural for policy to be “science-proofed”.
- Academics should not be advocates for a particular policy; they need to understand the constraints that policy makers operate under, just as policy makers need to understand the nuances in the scientific debate.
- It is important for civil servants to spend time within academic institutions and for academics to spend time within Whitehall and elsewhere; both communities will benefit.
- The key issues and “wicked problems” do not belong exclusively in one department or discipline.
- The Centre should create an environment away from the politically charged sensitivities of Whitehall in which innovative, challenging approaches and cross-cutting issues can be explored.
- There is scope for improving the way academics and government work together and for dispelling the myths about how science influences policy.
- In the long run it would be very important for us to operate at a global level and work with governments in all regions of the world.
- Government needs more people who understand science and engineering and their implications, and academia needs more people who understand the constraints and priorities of government, and what it is really like to work on the inside.



The first industry consultation meeting was attended by twenty representatives from industry, trade associations and government departments. The purpose of the meeting was to gain an industrial perspective on the Centre's engagement programme, and to extend our network by building a group of industrial partners. A wide ranging discussion touched on issues such as the role that industry plays in policy making and academia, how industry can engage with scientists and policy makers more effectively, the role that Centre could play in creating a virtuous circle of engagement, how long-term goals are set and met and how timescales differ between academia, industry and policy.

The meeting concluded that the Centre has a role to play in "joining up the triangle" between academia, policy and industry, and set three immediate objectives: to extend the Policy Fellows Programme to include industrial partners; to consider the dynamics of the three-way relationship in our work on the relationship between science and policy; and to build our network of industrial partners through further engagement and consultation.

We are grateful to all those who have contributed to our Consultation Meetings and Advisory Board Meetings in 2010. The Directors would also like to record their thanks for the ongoing interest and support of the Centre's Executive Committee: Professor Sir David Wallace (Chair), Professor Sir Tom Blundell, Lord Eatwell, Professor Lynn Gladden, Professor Alan Hughes and Professor Frank Kelly.

The discussions clearly concluded that in an era when the total spend on science – in government, research councils and universities – is set to reduce in real terms, money will need to be spent well. More and better communication across departments and between policy makers and scientists is needed, improving the way in which all parties work together.

This year we also began the process of reaching out to policy professionals and scientists in industry, following the guidance that we received from Whitehall underlining the need to join up all the elements of the government-academia-industry "triangle". We held our first industry consultation meeting, and welcomed our first industry-based Policy Fellows from BP, Pfizer, and Comac Capital.

# Associate Fellows and the Associate Network

People who are actively involved in the work of the Centre are **Associates**; the Centre currently has around two hundred and fifty Associates.

A select number from this group, who have made a significant contribution to the Centre's objectives and development, are elected **Associate Fellows**, of whom there are currently nine:



**Professor David MacKay**

Chief Scientific Adviser at the Department of Energy and Climate Change, and Professor of Physics, University of Cambridge



**Dr Miles Parker**

Deputy Chief Scientific Adviser at the Department for Environment, Food and Rural Affairs



**Professor Ben Martin**

Professor of Science and Technology Policy Studies, University of Sussex



**Dr Graeme Reid**

Deputy Director, Economic Impact at the Department for Business, Innovation and Skills



**Professor William Sutherland**

Miriam Rothschild Professor in Conservation Biology, Department of Zoology, University of Cambridge



**Mr David Howarth**

Reader in Law, Department of Land Economy, University of Cambridge; United Kingdom Electoral Commissioner and former MP for Cambridge



**Professor Susan Owens**

Head of Department of Geography, University of Cambridge



**Professor Brian Collins**

Chief Scientific Adviser at the Department for Business, Innovation and Skills, and the Department for Transport



**Professor David Spiegelhalter**

Winton Professor of Public Understanding of Risk, University of Cambridge

We also plan to recognise the contribution of early career researchers by electing Junior Associate Fellows.



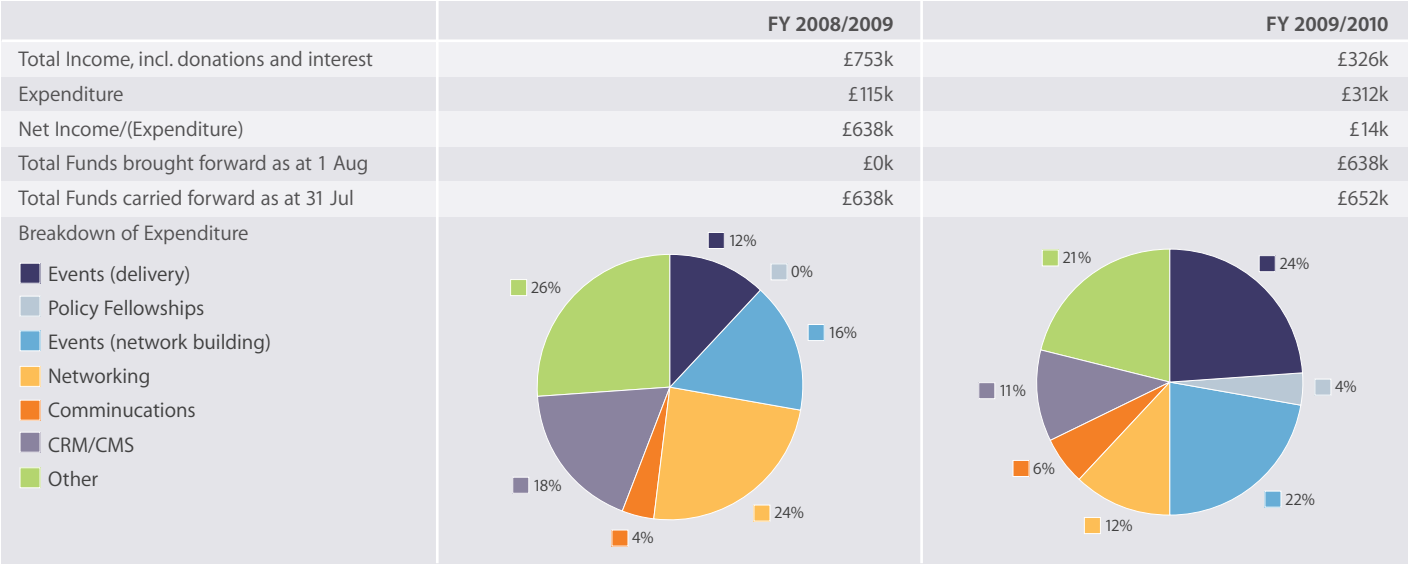
# Financial Report – Year to 31 July 2010

The Centre for Science and Policy is grateful for the support of its principal funders – particularly the David Harding Foundation (via the Winton Fund for Science and Policy), and the Isaac Newton Trust. Without their generous support, none of the Centre’s achievements as outlined in this report would have been possible.

As the table below shows, during the financial year 2009/2010 (to 31 July), the Centre received £326k of income (including interest) from all sources. The Centre’s total expenditure was £312k in the same period, with half of all spending being dedicated to events (workshops, seminars and lectures) and the Policy Fellowships Programme.

The Centre has therefore carried forward a balance of £652k into FY 2010/11, an increase of £14k on the balance at the start of 2009/10. Together with amounts already pledged by existing funders, this will allow the Centre to operate at “baseline” levels until April 2015.

However, we are actively seeking other sources of funding – from Trusts, Research Councils, the EU, private philanthropy and other sources – to enable us to increase our level of activity above the baseline and to sustain that activity beyond 2015. The impact of our activities in 2010 has shown clearly that there is a significant unfilled need for improved scientific advice in policy making, for increased understanding of the policy process among researchers, and for the relationship-building which is supported by our workshop and fellowship programmes, as well as for the research and teaching initiatives that we hope to promote.



# A Note of Thanks

The Centre for Science and Policy is grateful to all those who have given their time this year to support our workshops, seminars, development, fellowships and other activities (University of Cambridge unless otherwise indicated):

**Professor Chris Abell**, Professor in Biological Chemistry, Department of Chemistry; **Professor Bill Adams**, Moran Professor of Conservation, Department of Geography; **Dr Margaret Adey**, Director, Cambridge Programme for Sustainability Leadership; **Professor Phil Allmendinger**, Department of Land Economy; **Dr Julian Allwood**, Department of Engineering; **Mike Anderson**, Director General, Defra; **Professor Ross Anderson**, Professor of Security Engineering, Computer Lab; **Miles Ayling**, Director, Department of Health; **Dr Michelle Baddeley**, Faculty of Economics; **Dr Mark Bale**, Director, Department of Health; **Professor Andrew Balmford**, Professor of Conservation Science, Department of Zoology; **Dr Michael Barrett**, Reader in IT and Innovation, Judge Business School; **Professor David Baulcombe**, Professor of Botany, Department of Plant Sciences; **Professor Sir John Beddington**, Government Chief Scientific Adviser; **Professor John Bell**, Faculty of Law; **Sir Brian Bender**, former Permanent Secretary, Cabinet Office; **Dr Christopher Bishop**, Distinguished Scientist, Microsoft Research; **Dr Mike Bithell**, Department of Geography; **Dr Jason Blackstock**, Research Fellow, CIG; **Dr Alan Blackwell**, Reader in Interdisciplinary Design, Computer Lab; **Professor Sir Tom Blundell**, Sir William Dunn Professor of Biochemistry, Department of Biochemistry; **Dr Adam Bostanci**, Hughes Hall Centre for Biomedical Science in Society; **Dr Robert Bradburne**, Natural Environment Strategic Unit, Defra; **Dr Michael Bravo**, Senior Lecturer, Scott Polar Research Institute; **Professor Carol Brayne**, Department of Public Health & Primary Care; **Dr Laure Brévignon-Dodin**, Institute for Manufacturing, Department of Engineering; **Judy Britton**, Joint Head of Science in Government, GO-Science; **Lord Broers**, former Vice-Chancellor; **Professor William Brown**, Montague Burton Professor of Industrial Relations, Faculty of Economics; **Dr Hilary Burton**, Director, PHG Foundation; **David Cairncross**, Senior Policy Advisor, CBI; **Professor Howard Chase**, Professor of Biochemical Engineering, Department of Chemical Engineering and Biotechnology; **Dr Tim Chatterton**, Policy Fellow, DECC; **Sir John Chisholm**, Chairman, MRC; **Dr Alessio Ciulli**, Department of Chemistry; **Professor John Clarkson**, Director, Engineering Design Centre, Department of Engineering; **Professor David Clayton**, Cambridge Institute for Medical Research, Department of Medical Genetics; **Dr Richard Clayton**, Computer Lab; **Professor Nicola Clayton**, Professor of Comparative Cognition, Department of Experimental Psychology; **Professor Brian Collins**, Chief Scientific Adviser, BIS and DfT; **Dr David Connell**, Centre for Business Research, Judge Business School; **Dr Alison Cooke**, Programme Manager for Energy Efficiency in the Built Environment, Department of Engineering; **David Cooper**, Deputy Director, Defra; **Lucia Costanzo**, Head of EU Research Policy, BIS; **Polly Courtice**, Director, Cambridge Programme for Sustainability Leadership; **Professor Doug Crawford-Brown**, Executive Director, Cambridge Centre for Climate Change Mitigation Research; **Dr Hannah Critchlow**, Department of Experimental Psychology; **Dr Thomas Crossley**, Reader, Faculty of Economics; **Professor Jon Crowcroft**, Marconi Professor of Communications Systems, Computer Lab; **Dr Jo Dally**, Head of Briefings, GO-Science; **Professor John Danesh**, Professor of Epidemiology and Medicine, Department of Public Health and Primary Care; **Professor Dame Sally Davies**, Director General, Department of Health; **Professor Dame Sandra Dawson**, Professor of Management, Judge Business School; **Professor Arnoud de Meyer**, former Director, Judge Business School; **Sir Richard Dearlove**, Master of Pembroke College; **Dr Robert Doubleday**, Senior Research Associate, Department of Geography; **Professor Dame Anne Dowling**, Professor of Mechanical Engineering, Department of Engineering; **Nick Dusic**, Director, Pfizer; **Michael Eaton**, Director, Welsh Assembly Government; **Professor Lord Eatwell**, Professor of Financial Policy, Judge Business School; **Professor Marcial Echenique**, Professor of Land Use and Transport Studies,

Department of Architecture; **Dr Geoffrey Edwards**, Reader in European Studies, POLIS; **Professor Tim Eisen**, Clinical Director of Medical Oncology, Department of Oncology; **Julian Evans**, Secretary to the School of Humanities and Social Sciences; **Dr Richard Fenner**, Director of the MPhil in Engineering for Sustainable Development, Department of Engineering; **Dr Andrea Ferrari**, Reader in Nanotechnology, Department of Engineering; **Professor William Fitzgerald**, Head of Signal Processing and Communications, Department of Engineering; **Professor Norman Fleck**, Professor of Mechanics and Materials, Department of Engineering; **Chris Fleming**, Senior Policy Advisor, GO-Science; **Professor John Forrester**, Head, Department of History and Philosophy of Science; **Dr Oscar Franco**, Clinical Lecturer in Public Health, Department of Public Health and Primary Care; **Professor Sir Richard Friend**, Cavendish Professor, Department of Physics; **Professor Andrew Gamble**, Head, Department of Politics and International Studies; **Dr Elizabeth Garnsey**, Reader in Innovation Studies, Institute for Manufacturing, Department of Engineering; **Dame Helen Ghosh**, Permanent Secretary, Defra; **Professor Chris Gilligan**, Professor of Mathematical Biology, Department of Plant Sciences; **Dr David Good**, Lecturer, Department of Social and Developmental Psychology; **Stephen Gooding**, Director General, Department for Transport; **Jan Gower**, VP and UK Civil Government Industry Leader, IBM Global Business Services; **Dr Jonathan Grant**, President, RAND Europe; **Professor Mike Gregory**, Head, Institute for Manufacturing, Department of Engineering; **Dr Philip Guildford**, Research Director, Department of Engineering; **Professor Peter Guthrie**, Professor of Engineering for Sustainable Development, Department of Engineering; **Dr Theo Hacking**, Senior Research Associate, Cambridge Programme for Sustainability Leadership; **Dr Geoff Hale**, Associate Development Director, Corporate Partnerships, Pembroke College; **Dr David Halpern**, Deputy Director, Institute for Government; **Dr Steven Hand**, Reader in Computer Systems, Computer Lab; **David Harding**, Managing Director, Winton Capital Management; **Dr Tony Hargreaves**, Land Use and Transport Planning Group, Department of Architecture; **Dr Evan Harris**, former MP for Oxford West and Abingdon; **Professor Sir Brian Heap**, Vice Chairman, European Academies Science Advisory Council; **Dr Adam Heathfield**, Director of Science Policy (Europe), Pfizer; **Dr Andrew Herbert**, Managing Director, Microsoft Research Cambridge; **Professor Chris Hill**, Sir Patrick Sheehy Professor of International Relations, POLIS; **Professor Ian Hodge**, Head, Department of Land Economy; **Dr Florian Hoffelder**, Department of Biochemistry; **Anne Hollowday**, Policy Adviser, GO-Science; **Professor Andy Hopper**, Professor of Computer Technology and Head of Department, Computer Lab; **Mr David Howarth**, Reader in Law, Department of Land Economy; **Dr Tim Hubbard**, Head of Informatics, Wellcome Trust Sanger Institute; **Professor Alan Hughes**, Director, Centre for Business Research, Judge Business School; **Professor Colin Humphreys**, Director of Research, Department of Materials Science and Metallurgy; **Professor Herbert Huppert**, Director, Institute of Theoretical Geophysics; **Dr Julian Huppert**, MP for Cambridge; **Dr Stephanie Hurst**, Head of Planning Resources and Environment Policy Division, CLG; **Dr Marko Hyvonen**, Department of Biochemistry; **Dr Sriya Iyer**, Faculty of Economics; **Professor James Jackson**, Head, Department of Earth Sciences; **Dr Sanjay Jain**, Faculty of Economics; **Dr William Janeway**, Cambridge Endowment for Research in Finance; **Dr Stephen John**, Department of History and Philosophy of Science; **Dr Aled Jones**, Deputy Director, Cambridge Programme for Sustainability Leadership; **Peter Kellner**, President, YouGov; **Professor Frank Kelly**, Professor of the Mathematics of Systems, and Master of Christ's College; **Professor Michael Kelly**, Prince Philip Professor of Technology, Department of Engineering; **Helen Kennett**, Director of Government Relations, Rolls Royce;

**Professor Kay-Tee Khaw**, Professor of Clinical Gerontology; **Dr Michael Kitson**, Senior Lecturer in International Macroeconomics, Judge Business School; **Dr Nigel Knight**, Lecturer, Faculty of Economics; **Professor Peter Landshoff**, Department of Applied Mathematics and Theoretical Physics; **Philip Langsdale**, Chief Information Officer, BAA; **Nat LeRoux**, Chairman of the Trustees of the Constitution Society; **Professor Ian Leslie**, Professor of Computer Science; **Dr Tim Lewens**, Department of History and Philosophy of Science; **Dr Kathy Liddell**, Centre for Intellectual Property & Information Law, Faculty of Law; **Professor Paul Linden**, Professor of Fluid Mechanics, Department of Applied Mathematics and Theoretical Physics; **Dr Finbarr Livesey**, Director, Centre for Industry and Government, Institute for Manufacturing, Department of Engineering; **Professor Colin Lizieri**, Grosvenor Professor of Real Estate Finance, Department of Land Economy; **Professor Chris Lowe**, Professor of Biotechnology, Department of Chemical Engineering and Biotechnology; **Professor Jan Maciejowski**, Professor of Control Engineering, Department of Engineering; **Professor David MacKay**, Professor of Natural Philosophy, Department of Physics, and Chief Scientific Adviser, DECC; **Dr Mirca Madianou**, Newton Trust Lecturer, Department of Sociology; **Professor Robert Mair**, Department of Engineering; **Sir Michael Marshall**, Chairman, Marshall Aerospace; **Professor Ben Martin**, Professor of Science and Technology Policy Studies, University of Sussex; **Stewart McTavish**, Director, IdeaSpace; **Dr Nafees Meah**, Head of Science, DECC; **Professor Geoff Meeks**, Acting Director, Judge Business School; **Dr Andrea Mina**, Senior Research Fellow, Centre for Business Research, Judge Business School; **Dr Tim Minshall**, Senior Lecturer in Technology Management, Institute for Manufacturing, Department of Engineering; **Dr Geoff Moggridge**, Senior Lecturer, Department of Chemical Engineering and Biotechnology; **Dr David Morgan**, Researcher, Institute for Manufacturing, Department of Engineering; **Mr Matthew Moss**, Private Secretary to the Vice-Chancellor; **Sir Richard Mottram**, Non-Executive Chairman, Amey plc; **Sarah Mukherjee**, former BBC Environment Correspondent; **Dr Steven Murdoch**, Security Group, Computer Lab; **Professor John Naughton**, Professor of the Public Understanding of Technology, Open University; **Professor David Newbery**, Faculty of Economics; **Professor Peter Nolan**, Sinyi Professor of Chinese Management, Judge Business School; **Professor John Norman**, Director, CARET; **Professor Jim Norton**, External Board Member, Parliamentary Office of Science and Technology; **Dr Kenneth O'Callaghan**, Head of Directorate, Living With Environmental Change; **Dr Alex Oliver**, Reader, Faculty of Philosophy; **Baroness Onora O'Neill**, former Professor of Philosophy; **Dr Eoin O'Sullivan**, Senior Policy Fellow, Institute for Manufacturing, Department of Engineering; **Liz Owen**, Head of Customer Insight, DECC; **Professor Susan Owens**, Professor of Environment and Policy and Head, Department of Geography; **Professor Andy Parker**, Professor of High Energy Physics, Department of Physics; **Professor Mike Payne**, Head, Theory of Condensed Matter Group, Department of Physics; **Dr Graham Pendlebury**, Director - Environment and International, Department for Transport; **Professor Richard Pentty**, Professor of Photonics, Department of Engineering; **Professor Sir Keith Peters**, Regius Professor of Physic, School of Clinical Medicine; **Professor John Pethica**, Chief Scientific Adviser, National Physical Laboratory; **Dr Michael Pollitt**, Reader in Business Economics, Judge Business School; **Jonathan Portes**, Chief Economist, Cabinet Office; **Dr John Powles**, Department of Public Health and Primary Care; **Professor Jaideep Prabhu**, Jawaharlal Nehru Professor of Indian Business and Enterprise, Judge Business School; **Alan Pratt**, Director, Science Engineering and Technology, Home Office; **Alice Raine**, Assistant Chief Scientific Adviser, BIS; **Professor Danny Ralph**, Professor of Operations Research, Judge Business School; **Dr Mike Rands**, Executive Director, Cambridge

Conservation Initiative; **Martin Reavley**, Director, Research Office; **Lord Rees**, Master of Trinity College Cambridge, and former President of the Royal Society; **Dr Graeme Reid**, Deputy Director, Economic Impact, BIS; **Dr David Reiner**, Senior Lecturer in Technology Policy, Judge Business School; **Professor Keith Richards**, Department of Geography; **Professor Trevor Robbins**, Head, Department of Experimental Psychology; **Professor Martin Roland**, Professor of Health Services Research, School of Clinical Medicine; **Dr Jacob Rowbottom**, Assistant Director, Centre for Public Law, Faculty of Law; **Professor David Rubinsztein**, Professor of Molecular Neurogenetics, Cambridge Institute for Medical Research; **Philip Rutnam**, Director General, Business Group, BIS; **Philip Rycroft**, Director General, Innovation and Enterprise, BIS; **Professor Barbara Sahakian**, Professor of Clinical Neuropsychology, Department of Psychiatry; **Dr Ammon Salter**, Reader in Innovation Management, Imperial College Business School; **Professor Jeremy Sanders**, Head of School of Physical Sciences; **Dr Stuart Sarson**, Deputy Director, GO-Science; **Professor Stefan Scholtes**, Professor of Health Management, Judge Business School; **Professor Lawrence Sherman**, Wolfson Professor of Criminology, Institute of Criminology; **Professor Bernard Silverman**, Chief Scientific Adviser, Home Office; **Professor Patrick Sissons**, Head of School of Clinical Medicine; **Dr Malcolm Skingle**, Director Academic Liaison, GlaxoSmithKline; **Dr Julie Smith**, Department of Politics and International Studies; **Dr Bob Sorrell**, VP Public Partnerships, BP; **Professor David Spiegelhalter**, Winton Professor of the Public Understanding of Risk, Statistical Laboratory; **Dr Jag Srai**, Head, Centre for International Manufacturing, Institute for Manufacturing, Department of Engineering; **Dr Robert Sullivan**, Director, Life Sciences, BIS; **Professor William Sutherland**, Miriam Rothschild Professor in Conservation Biology, Department of Zoology; **Professor Stephen Sutton**, Head of Behavioural Science Group, General Practice and Primary Care Research Unit; **Professor Simon Szreter**, Professor of History and Public Policy, Faculty of History; **Professor Sandy Thomas**, Director of Foresight, BIS; **Professor John Todd**, Professor of Medical Genetics, Cambridge Institute for Medical Research; **Dr Alan Tunnacliffe**, Reader in Biotechnology, Department of Chemical Engineering and Biotechnology; **Lord Andrew Turnbull**, former Cabinet Secretary and Head of the Home Civil Service; **Shad Turney**, Chief Economist, Comac Capital; **Michael Tyler**, Managing Director, Tyler & Co; **Professor Lorraine Tyler**, Department of Experimental Psychology; **Professor Peter Tyler**, Department of Land Economy; **Peter Unwin**, Director General, Natural Environment, Defra; **Professor Ashok Venkitaraman**, Department of Oncology; **Dr Bhaskar Vira**, Senior Lecturer, Department of Geography; **Sir David Walker**, Senior Adviser, Morgan Stanley; **Professor Sir David Wallace**, Director, Newton Institute for Mathematical Sciences; **Sir Mark Walport**, Director, Wellcome Trust; **Professor Geoff Walsham**, Professor of Management Studies, Judge Business School; **Professor Jeremy Watson**, Chief Scientific Adviser, CLG; **Professor Robert Watson**, Chief Scientific Adviser, Defra; **Professor Ian White**, Pro-Vice-Chancellor for Institutional Affairs; **Professor Christopher Whitty**, Chief Scientific Adviser, DfID; **Sir Nigel Wicks**, former Chairman, Committee on Standards in Public Life; **Professor Paul Wiles**, former Chief Scientific Adviser, Home Office; **Katrina Williams**, Director General, Food and Farming Group, Defra; **Professor Peter Williamson**, Professor of International Management, Judge Business School; **Lord Wilson of Dinton**, Master of Emmanuel College, former Cabinet Secretary and Head of the Home Civil Service; **Stephen Wooding**, Research Leader, RAND Europe; **Dr Caroline Wright**, Head of Science, PHG Foundation; **Professor Steve Young**, Senior Pro-Vice Chancellor responsible for Planning and Resources; **Dr Ron Zimmern**, Chairman, PHG Foundation.



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