

# CHALLENGES AS THE CHIEF SCIENTIFIC ADVISER FOR DEFRA



Professor Robert Watson

Key issues for Defra include sustainable food security, the conservation and sustainable use of biodiversity and ecosystems, and adaptation to climate change. Addressing these issues requires state-of-the-art scientific (natural and social), technical and economic information and innovative policy formulation and implementation.

My current main challenge is to think through Defra's strategy for investing in evidence and innovation over the next 3-5 years and beyond. We are considering the whole range of Defra's tools for gathering evidence and driving innovation, from our in-house expertise and intelligent customer capability and our advisory structures to our major programmes of monitoring and research. We are developing mechanisms to improve prioritisation and to deliver a holistic multi-disciplinary integrated Defra-wide evidence programme that meets the individual needs of the departmental strategic objectives. This policy-relevant strategy is being developed with input from a broad range of stakeholders through workshops and peer-review. A major workshop, involving scientists and policymakers from Defra, other government departments,

My role as Defra's Chief Scientific Advisor is to challenge Defra on what evidence is being procured, how evidence is used in policy formulation, and communicating scientific issues internally and externally. This role is greatly facilitated by working with an enthusiastic and highly effective Defra staff and an outstanding set of Ministers and a management team who understand the importance of evidence-based decision-making and the importance of appropriate budgetary support.

Research Councils, private sector and academia, was recently held to address the full range of Defra evidence activities

In addition, the revised strategy will be used to develop additional partnership outside Defra, thus leveraging evidence activities financed by other government departments. The recently launched "Living with Environmental Change" (LWEC) programme, which is co-sponsored by seventeen Research Councils and government departments, offers an excellent opportunity for the UK to develop a world-class programme that is intellectually stimulating to the academic community and provides timely evidence for cost-effective policy formulation.

My second major challenge is to scrutinise and challenge the evidence base underpinning key policy decisions by applying my own expertise and/or by brigading external advice. Recent policy issues in which I have been involved include:

- (i) the economic, environmental and social sustainability of first and second generation biofuels;
- (ii) whether culling badgers would decrease the incidence of bovine

tuberculosis, and the strategy for developing badger and cattle vaccines;

- (iii) short- and long-term food security domestically and globally;
- (iv) implications of genetically modified crops;
- (v) conservation and sustainable use of biodiversity and ecosystem services; and
- (vi) adaptation to climate change.

Based on my experience to date, Defra ministers and policy officials care deeply about using the best available evidence in formulating policy decisions, whether it be commissioned by Defra or by others.

As a member of the Defra management team I am fully engaged in a wide range of issues including budget and HR. I am also the responsible officer for the Defra Departmental Strategic Objective (DSO-4) of "An economy and a society that is resilient to environmental risks and emergencies". This has proven to be a stimulating challenge working with Defra experts on floods, animal diseases, chemicals, nanotechnology and genetic modification to develop an appropriate set of indicators to assess risk and preparedness for emergencies and longer term threats. A strategic framework and reporting structure is being developed for evaluating and prioritising comparative risks.

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Let me highlight a couple of the policy issues in which I have been involved:

- During the last year I and other CSAs challenged the sustainability of first generation biofuels (food for fuel). Two key questions were whether the use of biofuels was increasing or decreasing greenhouse gas emissions, and whether it was contributing to an increase in food prices. This challenge led to the Gallagher review that concluded that there were numerous uncertainties associated with first generation biofuels but the evidence suggested that some biofuels may be increasing rather than decreasing the emissions of greenhouse gases and that some were contributing to an increase in food prices. The Gallagher review concluded that the UK Renewable Transport Fuel Obligation (RTFO) and the longer-term EU 2020 target targets needed to be revisited.

- With respect to the issue of biodiversity and ecosystems services, I provided input on:

- (i) the decision to prepare a UK-wide ecosystem assessment, which will assess the current state of ecosystems throughout the UK and how they and their services have changed over the past 60 years, the implications of changes in ecosystem services on human well-being, and assess how ecosystems might plausibly change in the upcoming 50 years, and policy and management options that would maintain their integrity;
- (ii) the decision to establish an Ad-hoc technical expert group (AHTEG) under the Convention on Biological Diversity (CBD), which would provide scientific information and advice to the United Nations Framework Convention on

Climate Change (UNFCCC) on climate change, biodiversity, deforestation and forest degradation; and

- (iii) a proposed intergovernmental platform on biodiversity and ecosystem services (IPBES), which would strengthen the science/policy interface internationally and could provide relevant information to all biodiversity-related conventions. I am currently co-chairing the AHTEG and UK National Ecosystem Assessment, and I co-chaired the first intergovernmental multi-stakeholder consultative process on the IPBES.

- Provided input to various papers and international debates on food security and genetically modified crops. My input was in part based on the International Assessment of Agricultural Science and Technology for Development (IAASTD), which I directed. The broad consensus of the experts who worked on IAASTD was that feeding an increasingly wealthier world with an expanding population and projected changes in climate in an environmentally and socially sustainable manner can be achieved, but not with a continuation of business-as-usual. It would require trade reform, an emphasis on agro-ecological practices, enhanced public and private investment in R&D, appropriate use of biotechnology, integration of local, traditional and formal knowledge, recognition of the needs of both small and large scale farmers, improved extension services, rural development and the empowerment of women farmers in developing countries.

My third challenge is to communicate effectively the state of understanding of the major environmental challenges

that the UK and the world faces, the implications of those observed and projected changes, and the options for action. Much of my time goes into communicating internally and externally with the public, private sector, governments and science community, through intergovernmental meetings, scientific conferences and workshops, meetings with external stakeholders, working with the media and publishing articles.

During the last year I have made numerous presentations within Defra on a wide range of environmental issues (climate change, food security, biofuels, the evidence programme), and dozens of keynote presentations nationally and internationally. For example, I was asked by Ban Ki Moon to make a presentation on climate change at a UN retreat with his senior staff. In addition, I made presentations on food security at Ministerial meetings of ECOSOC and the Commission on Sustainable Development; the US House of Representatives and a plenary session of the Convention on Biological Diversity. I also made a presentation at the Ministerial meeting of the UNEP Governing Council on the major environmental challenges that are undermining poverty alleviation and achieving the Millennium Development Goals. These and many more presentations have been complemented by radio, television and newspaper interviews.

Another important set of outreach activities has been to attend select committee hearings with Ministers on topics such as geo-engineering, food security and the marine bill, and inter-parliamentary committee meetings.

A fourth challenge is to promote scientific and technical

excellence in Defra as head of the Science and Engineering Profession by facilitating career paths for scientific and technical specialists in Defra.

In meeting the challenges, I have the great advantage of working with the Government's Chief Scientific Advisor, John Beddington, the other government departmental CSAs, and the chief executives of the Research Councils to ensure that we have a joined-up Government with respect to scientific advice and co-ordinated research activities. The collaboration and co-ordination among the CSAs is outstanding and there are regular meetings to discuss key issues such as climate change, food security, counter-terrorism, and pandemic flu.

Until the newly formed Department of Energy and Climate Change (DECC) has its own CSA, Brian Collins (CSA to DfT and BERR) and I are jointly acting as DECC's CSAs. This provides an excellent opportunity to provide input into DECC's domestic strategies for mitigating greenhouse gas emissions and their international strategy leading up to the Copenhagen meeting to negotiate a post-Kyoto agreement on mitigating and adapting to climate change.

I am also strongly supported in my job by an independent Science Advisory Council, whose function is to challenge, advise and support, as appropriate, me and Defra. The Council is an expert panel, with expertise spanning the range of issues associated with Defra. Recently SAC has provided input on risk, social sciences and a range of animal diseases. An evaluation of advice given by SAC to Defra shows a very high acceptance level by Defra, eg setting up DSO-4 and joint funding with NERC, ESRC and EPSRC on risk.

