

**GOVERNMENT RESPONSE TO THE AGRICULTURE AND
ENVIRONMENT BIOTECHNOLOGY COMMISSION REPORT:
'WHAT SHAPES THE RESEARCH AGENDA? IN
AGRICULTURAL BIOTECHNOLOGY'**

**Department of Trade and Industry
Department for Environment, Food and Rural Affairs
Biotechnology and Biological Sciences Research Council**

In agreement with other key public-sector funders of
agricultural biotechnology research in the UK

December 2005

GOVERNMENT RESPONSE TO THE AGRICULTURE AND ENVIRONMENT BIOTECHNOLOGY COMMISSION REPORT 'WHAT SHAPES THE RESEARCH AGENDA? IN AGRICULTURAL BIOTECHNOLOGY'

1. Introduction

The Government welcomes this final report by the Agriculture and Environment Biotechnology Commission (AEBC)¹, which looks at the drivers and mechanisms behind the setting of research priorities in agricultural biotechnology. The evidence base is drawn from agricultural biotechnology research, but the report has wider relevance and implications for research agenda setting.

The report's recommendations are primarily aimed at public research funders, strategic decision makers and advisory and decision-making bodies. This response has been prepared by the Office of Science and Technology (OST)², the Department for Environment Food and Rural Affairs (Defra)³ and the Biotechnology and Biological Sciences Research Council (BBSRC)⁴ in consultation with other key UK public sector research funders. The BBSRC's response is provided separately at Annex A.

We value the work that the AEBC put in to this report and we agree with many of its conclusions and recommendations. In this response we set out ways in which we are, or will be, supporting the recommendations, as well as explaining some areas where we only partly agree with them.

2. The Nature of Research Agendas

Recommendation 1

Diverse research agendas mean a plurality of drivers behind research and therefore encourage a balanced and varied portfolio. This diversity is healthy and research funders and strategic decision-makers should ensure that no one agenda or driver is allowed to dominate.

Recommendation 2

Support for high quality, basic research should be maintained, to generate fundamental knowledge even if it has no direct and immediately obvious practical value. Basic research priorities and areas of science cannot be

¹ The AEBC was recently reviewed and was wound up in April 2005. The AEBC website is still available at <http://www2.aebc.gov.uk/aebc/index.html> and includes an electronic copy of the 'Research Agendas' report.

Details of the review of the AEBC can be found at: <http://www.ost.gov.uk/policy/bodies/review.html>

² http://www.ost.gov.uk/index_v4.htm

³ <http://www.defra.gov.uk/>

⁴ <http://www.bbsrc.ac.uk/>

divorced from overall strategic direction or accountability, but they should be protected from short-term pressures such as policy needs and the drive for wealth creation. Excellence should be the primary criterion for funding and as wide a science base as possible should be maintained.

Recommendation 3

Science decision-makers should ensure that technologies do not become ends in themselves, but are integrated with explicit goals of benefit to society and sustainable agriculture.

Recommendation 4

We endorse the recommendation of the BBSRC sustainable agriculture review group for a review of the capacity for more systems-based, longer-term sustainable agriculture studies.

Recommendation 5

The public good should be a more explicit objective within research agendas. For agricultural biotechnology research specifically, sustainability should be an overarching and key strategic driver. The concept of sustainability encompasses the need for more explicit reference in research to the 'trade offs' between economic, social and environmental objectives.

Recommendation 6

Public funding for near-market research should not be ruled out where it contributes to the sustainability of farming. Where a need is identified, Government should look towards providing either research and/or market incentives to encourage product or process development. If research has commercial applications, priorities should be determined in consultation with appropriate stakeholders to ensure the market relevance of the research. The appropriate distance from market for the publicly funded research must be carefully determined.

We broadly agree with the AEBC's recommendations on the nature of research agendas. We agree that diversity in research agendas is healthy and a pre-requisite for a balanced portfolio. We also agree strongly that technologies should not become ends themselves. It is important to recognise that, especially for Defra, 'agricultural biotechnology' is a tool rather than an outcome that we seek.

We agree on the importance of support for high quality basic research. Investment in basic research is critical to the UK's economic success and the wider health and well being of our society. OST has responsibility for the vitality and standing of the UK research base as a whole and for ensuring that the Science Budget, via the activities of the Research Councils, continues to support a wide portfolio of high quality basic, strategic and applied research in Higher Education Institutions and Research Council owned and sponsored institutes and centres. Whilst OST sets the overall strategic objectives and priorities for the Science Budget consistent with wider Government

priorities, Research Councils are independent bodies and prioritise within their particular areas. Allocation of the Spending Review 2004 settlement, including continued increased investment for basic research, was made by the Director General Research Councils on the basis of individual Research Council delivery plans which are developed in line with Government strategy⁵.

Departments undertake a wide-ranging and complex programme of research to support decision-making and the delivery of their policies. However, they can only be expected to fund a proportion of the science/knowledge base and will need to continue to work with other organisations to ensure capabilities are maintained.

Departments' primary research needs are focused on the knowledge, understanding and technologies needed to support the delivery of policy outcomes. Thus, the policy outcomes set by Ministers are the prime drivers behind their research. Excellence is one of the primary criteria in research procurement, as good quality science is essential to sound evidence-based policy.

Defra's Chief Scientist has a special responsibility to ensure the quality of science that it uses. There is an active programme of independent peer-review for Defra funded research. In 2004, a joint code of practice was launched with the Food Standards Agency (FSA), BBSRC, the Natural Environment Research Council (NERC) and the UK devolved administrations to assure the quality of the research processes used by contractors. There is also a rolling programme of independent science audits for Defra's three laboratory agencies, the Centre for Environment, Fisheries and Aquaculture Science (CEFAS), the Veterinary Laboratories Agency (VLA) and the Central Science Laboratory (CSL). Audits take place at five yearly intervals and the next audit will be of CEFAS in October 2005⁶.

Departmental research portfolios are guided by the need to intervene in research delivery to support policy outcomes. Thus we agree that, where a public policy need is identified, funding for public near-market research should not be ruled out. Research will continue to be funded where it is clear that public intervention close to the market is required to support the outcomes we seek.

The Government has already ensured that the public good is an explicit objective in the Research Councils' objectives and we are of the view that there is no need for change. The objects in their Charters make it clear that Councils must support high quality research and related postgraduate training and that the research and training outcomes should contribute to both economic competitiveness and the quality of life. This is reflected in the wide range of fundamental research and postgraduate training objectives that are set out in each Council's Strategic and Delivery Plans. In terms of the detailed priority/balance of specific research activities, this is primarily a matter for the Research Councils to determine.

Horizon scanning also has an important role to play, in terms of identifying long-term and global trends and drivers which need to be recognised in setting research requirements (the potential impact of climate change and growing human population being two obvious examples).

⁵ www.ost.gov.uk/research/funding/budget05-08/index.htm

⁶ www.defra.gov.uk/science/how/quality.htm

3. Openness, Transparency and Inclusiveness

Recommendation 7

From the highest-level scientific committees, including the Council for Science and Technology, to Research Council and Government Department decision-making bodies, meetings should be held in public wherever practicable. This applies particularly to strategic level and priority setting bodies. Documents should be made freely available, or the reasons for not making them available should be clearly explained.

Partially agreed. Whilst we encourage openness and transparency in decision-making, it may not always be possible or appropriate for bodies to meet in public. It is therefore essential that we strike the right balance between the efficacy and relevance of public meetings and identifying the most effective ways of ensuring decisions and the reasons behind them are communicated to the public. Government is working to do this through a variety of routes including the Freedom of Information Act, webcasting meetings and the publication of minutes.

In addition, for specific types of Committee, established codes of practice exist which encourage openness. For example, the Code of Practice for Scientific Advisory Committees⁷ states that the proceedings of a committee should be as open as is compatible with the requirements of confidentiality. The Code also states that committees should maintain high levels of transparency during routine business.

Recommendation 8

For all publicly funded research projects, a short summary of the project should be written, including an explanation of why it has been funded and how it will contribute to strategic objectives. This should be comprehensible and informative to a non-specialist and should be made easily available to the public.

All Research Councils collect a summary in simple terms for a general audience from applicants as part of the application form. However, while some Councils do publish this information on the web, it is not the case for all Councils. Councils are considering how best to increase the amount of information published, especially in the context of the move to wider usage of electronic submission processes by all Councils. By default, details of all Defra's research projects and project reports are published on their website⁸.

An explanation as to why an application was funded by Research Councils, and how it will contribute to strategic objectives, is not provided on an individual award basis. However, the aims and objectives of the awards process/schemes and the

⁷ www.ost.gov.uk/policy/advice/copsac/index.htm

⁸ www2.defra.gov.uk/research/project_data/Default.asp

assessment criteria are published. In addition, Research Councils publish the criteria by which applications are considered for funding, including the strategic priorities, as described in the strategic and delivery plans.

Recommendation 10

From the highest-level scientific committees, including the Council for Science and Technology, to Research Council Strategy Boards and Government Departments' advisory panels, there is a need to enlarge membership to include those outside academia and industry.

Partially agreed. Whilst the widening of membership is likely to add value in most cases, there will be occasions where the remit of a committee is so narrow, e.g. to provide specialist scientific advice, that wider membership would not add to the balance of expertise required to perform the role with which a committee had been entrusted. On these occasions, it is of course essential that departments ensure that the wider evidence of the environment in which scientific advice might be applied is fully considered. This is covered in the Chief Scientific Adviser's guidelines on the use of scientific advice in policy making⁹.

4. Public Engagement and Dialogue

Recommendation 9

All public sector research funders and advisory groups should use validated methods of public engagement or dialogue to supplement their high-level, strategic decision-making. Funders should say in advance how they plan to use the results of engagement, and should document clearly how the results have influenced them. The approaches used should preclude undue domination by any one interest. Engagement should not be passive, but should actively seek out opinion and should also allow participants to frame the issues being discussed.

We agree on the importance of using validated methods of public engagement or dialogue. The Government has set out its approach to public dialogue on science and technology in a set of guiding principles¹⁰ which clearly state our objective of enriching decision-making by gathering and analysing broad intelligence on the full range of issues (technological, scientific, environmental, social, ethical, legal and economic) related to emerging new areas of science and technology and their governance. Such dialogue will inform, rather than determine, policy and decision-making by those empowered to do so. We will facilitate this through robust, timely, inclusive and properly resourced dialogue that is clearly linked into decision-making processes around science and technology. Further, we will continually review policy, guidance and experience to ensure that our approach is compatible with and contributes to good practice. We will ensure that the learning gained from this

⁹ www.ost.gov.uk/policy/advice/guidelines_2005.htm

¹⁰ www.ost.gov.uk/society/public_dialogue.htm

approach is disseminated widely within the science, engineering and technology community and beyond.

We believe that the recent steps (following the Curry Commission report) to establish new co-ordination mechanisms for agriculture and food research in England have led to improved co-ordination. This has also led to a systematic incorporation of stakeholder views on how Defra can best focus its research to support the policy outcomes set by Ministers. The work of the Research Priorities Group has been a major step forward in using stakeholder views to inform the direction of farming and food R&D. The issue of public confidence is core to the effective delivery of Defra's science mission statement. Ensuring the quality of science, external challenge, and active communication with the public as well as experts are all crucial.

As global drivers will significantly change the international context for UK farming and food in the next 10 years, we believe that co-ordination of public research agendas at the international level is key to viability and efficiency. Further, restoring UK capacity in production-related agricultural science areas will be aided by increasing international collaboration and funding, active industry engagement, and the restoration of UK user demand for new technologies (including plant and animal breeding capability) is particularly relevant.

Horizon scanning has an important role to play in spotting unrecognised threats and opportunities, and identifying emerging issues, which will benefit from public engagement at the earliest stage.

Recommendation 11

Given the enthusiasm and willingness to take part that we found in public participants in our engagement exercise, the Office of Science and Technology should explore the potential for promoting engagement in science and technology as an exercise in citizenship and an opportunity to better inform the public.

The Government is working to ensure that public bodies are receptive to, and capable of adopting, public dialogue as a mainstream part of policy and decision-making across a wide range of policy areas. The Government's recently launched action plan for civil renewal (*Together We Can*¹¹) makes this point clearly, calling on all public bodies to be more open and responsive to the needs of the citizens they serve.

To deliver this, we need to enhance the capacity of all participants in such processes. The Sciencewise¹² programme, a grant scheme for projects that bring scientists, government and the public together to explore the impact of science and technology in our lives, has this as one of its key aims. Its managers will work closely with other initiatives across government that aim to boost public participation in the shaping and delivery of public services.

¹¹ www.togetherwecan.info/index.html

¹² www.sciencewise.org.uk

Recommendation 12

Communication of science to non-scientists must not be neglected, although it is only one aspect of engagement and dialogue. The Office of Science and Technology should commission an independent review of the presentation of science and technology matters in the media, and Government's role in this. It should develop a programme of work bringing together the media, scientists, public and other sectors of society to reflect on science communication.

OST are currently commissioning a study of trends in the reporting of science and technology in the media. However, we do not feel that an overarching programme managed by OST would necessarily add the most value. Government departments already carry out work in this area, as do a number of external organisations such as the Royal Society, British Association and Science Media Centre.

That said, OST already have several streams of work which reflect on science communication. The recent MORI poll carried out on OST's behalf provides comprehensive information on the public perception of science and science communication. The Chief Scientific Adviser, Chief Medical Officer and the Chancellor of the Duchy of Lancaster are holding a series of meetings with newspaper and broadcast editors to discuss how risk can be communicated effectively so that the maximum information can be put into the public domain with the minimum of unnecessary alarm.

BBSRC RESPONSE TO THE AEBC REPORT 'WHAT SHAPES THE RESEARCH AGENDA'

Introduction

BBSRC welcomes this report, which raises issues relevant beyond the scope of agricultural research. The report has been discussed by the Bioscience for Society Strategy Panel¹, within BBSRC-sponsored research institutes and by relevant departments within BBSRC Office. This response incorporates comments and views from all these groups.

We were grateful to be invited to participate in the information-gathering stages that led to the production of the report. We commend the process the Commission used, and believe that the conclusions drawn are built on the solid foundations of wide stakeholder consultation and deliberative public engagement.

We agree with many of the conclusions and recommendations. In this response we set out ways in which we will move towards, or have already made progress towards, implementing recommendations, as well as explaining any areas of disagreement. We would welcome the opportunity for further discussion on any points where we do not agree with the recommendations, or where our strategies for implementation do not meet with expectation.

Recommendation 1

Diverse research agendas mean a plurality of drivers behind research and therefore encourage a balanced and varied portfolio. This diversity is healthy and research funders and strategic decision-makers should ensure that no one agenda or driver is allowed to dominate.

We agree that a plurality of drivers helps ensure a balanced portfolio of research. We expect that plurality of drivers will be found both within and between various funders. Our drivers are articulated in our mission statement and include advancing knowledge, wealth creation and public good in line with Government policy. We see these as interrelated and do not foresee that any one driver would dominate in future.

We accept that there is some influence from the 'informal drivers' named in the report including scientific trends, past precedents and areas of UK expertise. With over 70% of BBSRC's funding for science committed through responsive mode and initiative funding it is unlikely that any driver of this nature would be too 'top-down'. In addition, we have various schemes to help balance informal influences. For example, if it becomes apparent that an area of research is suffering owing to lack of UK expertise, then we investigate how capacity can be built in the area, for instance through:

¹ www.bbsrc.ac.uk/about/gov/panels/bs_intro.html

awards (e.g. we are currently partners with other funding councils, learned societies and industry in capacity building awards for integrative mammalian biology); workshops (a workshop in animal welfare in 2002 was influential in developing a cross BBSRC committee priority in the 3Rs); and funding for large programmes with other research councils (e.g. the Rural Economy and Land Use programme). We also hope that by offering scientists early in their career some preferential treatment when ranking grants for funding and keeping a wide expertise base on all funding committees we help avoid any excessive influence of past precedent.

As far as BBSRC is concerned we do not entirely agree that the influence of 'ordinary scientists' over setting the research agenda is particularly constrained. The amount of funding devoted to responsive mode is larger than ever. In addition, our funding committees, strategy panels and boards are largely comprised of 'ordinary scientists', and the memberships change frequently.

Recommendation 2

Support for high quality, basic research should be maintained, to generate fundamental knowledge even if it has no direct and immediately obvious practical value. Basic research priorities and areas of science cannot be divorced from overall strategic direction or accountability, but they should be protected from short-term pressures such as policy needs and the drive for wealth creation. Excellence should be the primary criterion for funding and as wide a science base as possible should be maintained.

We agree with this recommendation, and are pleased with the levels of public support reported for basic science that is revealed by a recently published study we commissioned from MORI on public attitudes to diet and health research². Supporting basic and strategic science is BBSRC's mission, and scientific excellence is our overriding criterion for funding particular projects and when reviewing our sponsorship of institutes. Some high-quality basic research will generate the next generation of strategic research opportunities. Underpinning wealth creation is part of our mission and we would not see that as conflicting with our aim to support for basic research.

Recommendation 3

Science decision-makers should ensure that technologies do not become ends in themselves, but are integrated with explicit goals of benefit to society and sustainable agriculture.

The mass of data now available in the biosciences can only usefully be translated into new knowledge and applications by developing technologies. Tools and technologies have become an integral part of modern biology, so much so that we have a Tools and Resources Strategy Panel³ dedicated to enabling the development of the basic tools, resources and new technologies to further understanding of the

² www.bbsrc.ac.uk/about/pub/reports/dietandhealth_12_10_05.html

³ www.bbsrc.ac.uk/about/gov/panels/tr_intro.html

biosciences. This Panel works closely with other Panels and we do not believe that technology is an end or a driver in itself.

Recommendation 4

We endorse the recommendation of the BBSRC sustainable agriculture review group for a review of the capacity for more systems-based, longer-term sustainable agriculture studies.

We welcome this endorsement. Recommendations from our sustainable agriculture review⁴ are being taken forward by the Sustainable Agriculture Strategy Panel⁵.

Recommendation 5

The public good should be a more explicit objective within research agendas. For agricultural biotechnology research specifically, sustainability should be an overarching and key strategic driver. The concept of sustainability encompasses the need for more explicit reference in research to the ‘trade offs’ between economic, social and environmental objectives.

Sustainable agriculture is one of BBSRC’s four priority areas identified in our Strategic Plan⁶. We have a Strategy Panel devoted to help us take this priority forward. We do believe that ‘wealth creation’ should be taken in its broadest sense and include non-financial values. We accept that this term can be confusing to the public and indeed have found this to be the case ourselves during a recent public dialogue activity.

Recommendation 6

Public funding for near-market research should not be ruled out where it contributes to the sustainability of farming. Where a need is identified, Government should look towards providing either research and/or market incentives to encourage product or process development. If research has commercial applications, priorities should be determined in consultation with appropriate stakeholders to ensure the market relevance of the research. The appropriate distance from market for the publicly funded research must be carefully determined.

BBSRC mainly supports basic and strategic research. We encourage industrial involvement and continue to support research co-funded with industry for example through the LINK programme⁷. We realize that these kinds of partnerships raise issues and are committed to openness and transparency in this and other areas, and continue to explore these issues through dialogue with different groups. We engage

⁴ www.bbsrc.ac.uk/about/pub/reports/sustain_ag16_10_02.html

⁵ www.bbsrc.ac.uk/about/gov/panels/sa_intro.html

⁶ www.bbsrc.ac.uk/about/pub/policy/strategic.html

⁷ www.bbsrc.ac.uk/business/knowledge/link.html

with a variety of user stakeholders, for example through the Applied Research Forum for Farming and Food. This forum provides us with advice about the strategic relevance of grant proposals about sustainable agriculture.

Recommendation 7

From the highest-level scientific committees, including the Council for Science and Technology, to Research Council and Government Department decision-making bodies, meetings should be held in public wherever practicable. This applies particularly to strategic level and priority setting bodies. Documents should be made freely available, or the reasons for not making them available should be clearly explained.

We applaud moves towards transparency and openness and are as far as possible embracing this culture. It is not always possible for BBSRC to hold its meetings in public; Council discusses issues related to sponsored institutes and staffing, and funding committees discuss particular grant applications which contain intellectual property. However, BBSRC holds an open meeting annually where any stakeholder can question senior officials about our strategy and activities. We believe that openness should empower people to question rather than just allow observation of processes. We are also broadening our consultation processes to make documentation more accessible and include face-to-face meetings a part of the consultation process. A recent example of this was the Farm Animal Genomics consultation which was sent to over 400 stakeholders and included two discussion meetings. In addition, we aim in the near future to have all papers for committee and panel meetings published on our website. We agree that there is a cost associated with transparency and are therefore careful to assess the benefits and move towards openness as positively as we can in line with resource constraints.

Recommendation 8

For all publicly funded research projects, a short summary of the project should be written, including an explanation of why it has been funded and how it will contribute to strategic objectives. This should be comprehensible and informative to a non-specialist and should be made easily available to the public.

We welcome this recommendation. Currently, technical abstracts of funded grants are published on our website in a searchable format as long as the project leader is in agreement⁸. However, we also require that grant awardees submit a lay summary of their project. We intend to support a public dialogue process to establish what the public would like to know about individual grants and in what format it should be presented. Once we have established that we intend to work with grant holders so that these lay summaries address the aspirations and concerns of the public. We will then adapt our database so that the summaries are posted on our website. Following trialing, we will advertise this facility. We aim to complete this project within the next

⁸ <http://dataserv.bbsrc.ac.uk/Welcome.html>

year. There is already information published on our website about how research projects are reviewed for funding.

Recommendation 9

All public sector research funders and advisory groups should use validated methods of public engagement or dialogue to supplement their high-level, strategic decision-making. Funders should say in advance how they plan to use the results of engagement, and should document clearly how the results have influenced them. The approaches used should preclude undue domination by any one interest. Engagement should not be passive, but should actively seek out opinion and should also allow participants to frame the issues being discussed.

We welcome this recommendation. We are working to improve and embed our public engagement and dialogue processes within the core business of the Council. We recognise that effective public engagement is challenging, and are using specialist advice from our Bioscience for Society Strategy Panel as well as external consultants to develop our processes. We agree with comments from the Food Ethics Council that one of the biggest challenges is to ensure the outputs of public dialogue are used effectively by decision-makers.

A recent example of our approach is a public dialogue activity looking at priorities in diet and health research. We started this project earlier this year in the expectation that this will be a priority area for BBSRC in the future and therefore the engagement is 'upstream' of strategic decision-making. We worked jointly with the Institute of Food Research (IFR) on this activity and contracted it out to MORI. The steering group included representatives from two strategy panels at BBSRC as well as IFR representatives, and social scientists that specialise in researching methods of public dialogue. The report has recently been published, and is available on our website². The outputs were discussed with stakeholders and will feed into strategic decisions taken by BBSRC and IFR. We intend to have the whole process evaluated by an external consultant and if successful will use it as a model for future public dialogue.

We work in partnership with other Research Councils to enhance impact and effectiveness of our public dialogue activities. We are currently developing a public dialogue project on nanotechnology in partnership with sister Councils and other partners. This project, led by the Think Tank DEMOS, seeks to explore some of the issues raised by AEBC's research.

For the first time in 2005 we are assessing public engagement separately from the rest of the institutes' activities during the four yearly assessments of BBSRC sponsored-institutes. We will use this information to work with the institutes to share good practice and develop core programmes of public engagement and dialogue.

As noted in AEBC's report and elsewhere effective public engagement is expensive. Whilst we are trying to move this area forward, like other public funders the resource allocation to this area needs to be in line with allocations to other areas and public demand. To meet the expanding public interest and demand for more engagement

we intend to double expenditure in this area over the next five years (see BBSRC's Delivery Plan⁹).

BBSRC's stakeholders are laid out in our Communications Strategy. We agree that campaigning groups are not necessarily representative of general public opinion although they provide a useful voice in discussion. We try to target engagement activities to the particular stakeholder group and include true public engagement wherever appropriate.

We will continue to monitor the effectiveness of all our engagement activities and welcome constructive comment and dialogue about our strategies in this area.

Recommendation 10

From the highest-level scientific committees, including the Council for Science and Technology, to Research Council Strategy Boards and Government Departments' advisory panels, there is a need to enlarge membership to include those outside academia and industry.

We agree that all organisations involved in developing science strategy need input from as broad a stakeholder base as possible. We do not believe that this is best achieved in every case by having individuals from many different constituencies present on every committee. In some instances, this works well, for instance the template for membership for our Bioscience for Industry Strategy Panel¹⁰ includes a farmer, as well as representatives from relevant companies and trade associations. However, without enlarging committees beyond a useful size it can prove impossible to have all interests represented. We also believe that an individual chosen to represent a particular community can suffer from 'tokenism', and that also, after a few meetings, may become so involved in the particular area that they cease to fully act for the non-specialist community from which they were chosen.

At BBSRC we have therefore decided to have whole strategy panels representing different views – for example those of users on the Bioscience for Industry Strategy Panel and the public on the Bioscience for Society Panel. These Panels have themselves diverse memberships¹¹. All Panel Chairs sit on BBSRC's Strategy Board which directly advises the governing Council on strategy.

Recommendation 11

Given the enthusiasm and willingness to take part that we found in public participants in our engagement exercise, the Office of Science and Technology should explore the potential for promoting engagement in science and technology as an exercise in citizenship and an opportunity to better inform the public.

⁹ www.bbsrc.ac.uk/about/pub/policy/delivery.html

¹⁰ www.bbsrc.ac.uk/about/gov/panels/bi_intro.html

¹¹ www.bbsrc.ac.uk/about/gov/panels/Welcome.html

Many recent studies have shown that the public welcome the opportunity to engage in some form of dialogue activity about science (MORI poll 2004)¹². As described above we wish to expand our activities in this area which will increase opportunity for those interested. We hope and expect that similar moves will be taken by other organisations. We feel that increasing public knowledge about science, and wider input into decision-making are separate although obviously related issues. In addition, we consider that setting scientific decision-making as equal and similar to the judicial system may result in over-emphasising the importance of the subject compared with other societal areas and lead to unhelpful comparisons.

Recommendation 12

Communication of science to non-scientists must not be neglected, although it is only one aspect of engagement and dialogue. The Office of Science and Technology should commission an independent review of the presentation of science and technology matters in the media, and Government's role in this. It should develop a programme of work bringing together the media, scientists, public and other sectors of society to reflect on science communication.

The media are of course an important vehicle for communication between scientists and the public. Generally, our scientists find working with the media is a positive experience, and the Science Media Centre¹³ has helped greatly with getting effective coverage of emotive subjects. We are concerned slightly at the ambition of the suggested review, and of the possible negative inference of the need to undertake one. We feel that all Government departments and agencies involved with science strategy, not just the Office of Science and Technology, should have a responsibility to encourage scientists to work with the media as much as possible in an open and equal dialogue, with the scientists accepting the needs and expectations of the media and vice versa. In common with some other organisations we offer funded scientists media and communications training¹⁴, where we bring small groups of scientists in contact with journalists. We believe that increasing the provision of media and communications training, and encouraging all scientists to work with media or other stakeholder groups may be a more effective way to achieve coverage of science.

¹² www.mori.com/polls/2004/ost.shtml

¹³ www.sciencemediacentre.org

¹⁴ www.bbsrc.ac.uk/support/communicate/training/Welcome.html

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