

## **Science Advisory Council**

### Governance sub-group

## Governance of Defra science advisory bodies— bovine TB and badgers

**Paper: SAC-G (05) 5**

**Author: SAC Secretariat, 23/03/2005**

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### **ACTION FOR SAC**

- Discuss report and agree recommendations to be taken forwards

## Summary of Recommendations

**Recommendation 1:** We recognise that Defra has a substantive need for independent science advice, both natural and social, to inform policy decisions on bovine tuberculosis (bTB) issues. We recommend the establishment of a new bTB Science Advisory Body (bTB SAB) to provide such advice (paragraph 7.1).

**Recommendation 2:** We welcome Defra's plans for a new advisory NDPB; the 'National advisory group on bTB'. We recommend that this group should act as an overarching body receiving advice from the bTB SAB and other committees, such as stakeholder groups (paragraph 7.2).

**Recommendation 3:** The bTB SAB should be established in consultation with the Chief Scientific Adviser (CSA). The CSA should advise on its terms of reference, membership and peer review (paragraph 11.8). As part of our advice, we have suggested outline terms of reference (paragraph 11.10) and membership (paragraph 11.4) for the bTB SAB.

**Recommendation 4:** The bTB SAB should itself not own or conduct any science; it should advise on the commissioning of research and undertake the review, interpretation and synthesis of research. It will be imperative that the bTB SAB have uninhibited access to data and information contained within Defra TB-related science and research programme (paragraph 11.3).

**Recommendation 5:** We propose that the bTB SAB should report to both the CSA and the Chief Veterinary Officer (CVO), the latter through the 'National advisory group on bTB' (paragraph 7.7).

**Recommendation 6:** We expect the CSA to draw also upon the advice and expertise from the Science Advisory Council (SAC) as required, the SAC adopting an advice and audit role on the work of the bTB SAB (paragraph 11.8).

**Recommendation 7:** Social science should be a clear component of the science advice delivered by bTB SAB and should not just be considered in the context of 'end of pipe' policy implementation (paragraphs 9.1 and 11.10).

**Recommendation 8:** We recommend that scientific advice on bTB should be semi-autonomous from policy advice, subject to its own separate lines of accountability, but strategically plugged into policy development (Paragraph 10.3).

**Recommendation 9:** The full scientific evidence should be made available both to the CSA, to external bodies for review, and to the public to support Defra's accessibility commitment on working openly and honestly (paragraph 10.4).

**Recommendation 10:** Following on from lessons learnt from the bTB experience, we propose a general framework for committee structures and reporting lines to be adopted for addressing complex issues that require scientific input (paragraph 12.2).

## Vote of Thanks

The sub-group would formally like to thank Defra's TB division, in particular Sue Eades and Fred Landeg, for their continued assistance and without whom the objectives of the sub-group could not have been achieved. The sub-group would also like to thank Professor John Bourne (Chair of the Independent Scientific Group on cattle TB - ISG) and Professor Christl Donnelly (Vice-Chair of the ISG) for their valuable input and for their willingness to engage fully in discussions.

## Members of the Sub-Group

### SAC Members

Prof. Christopher Gaskell	Professor of Small Animal Studies and Pro-Vice Chancellor, University of Liverpool
Prof. Philip Lowe	Director, Rural Economy and Land Use Programme of the UK Research Councils
Prof. Thomas Meagher	Professor of Plant Biology, University of St Andrews
Ms Anna Bradley	Consumer Director, Financial Services Authority

### Secretariat

Dr. Tim Bradshaw	SAC Secretary
Ms Yvette Cook	Science Directorate, Defra

## 1. Introduction

- 1.1 One of the core terms of reference for the Science Advisory Council (SAC) is to provide the Chief Scientific Adviser (CSA) with independent advice on, *'the design of procedures relating to science advice'* in Defra (see SAC terms of reference at: [www.defra.gov.uk/science/sac](http://www.defra.gov.uk/science/sac)).
- 1.2 Our sub-group (SAC-G) was convened following discussions at the SAC meeting on 11<sup>th</sup> October 2004 (see paper **SAC(04)23** paragraphs 6.4 to 6.6) where it was agreed that it would be instructive to consider the delivery of evidence and advice to the CSA and Ministers on bovine tuberculosis (bTB) and badgers. It was agreed that Professor Gaskell would Chair the sub-group.
- 1.3 The sub-group has focused its efforts on governance and process issues relating to the provision of science advice on bTB (hence 'SAC-G'), rather than on the science itself. We hope that this will help Defra in planning for its long-term science advice needs on bTB to underpin policy, and we make a number of recommendations for Defra to follow-up. Experience with bTB has also raised some more generic issues which we have captured in this report; these, we hope, will form the basis for future work by Defra to develop best practice on the science advice process to be used in future *across* the department.
- 1.4 The sub-group has been forward-looking. It has not attempted to second guess Defra's legacy systems, but has learnt from the experience of past and existing arrangements—recognising that they had been established according to the conditions that prevailed at the time.

### **Terms of reference for SAC-G** (signed-off at the SAC meeting on 6<sup>th</sup> January 2005)

To consider Defra's long-term science advice needs on bovine TB and badgers, to ensure that the science advice process is fit for purpose, robust and trusted by stakeholders. The sub-group will:

- consider whether and/or what type of advisory body is required; and
- consider issues such as advisory body terms of reference, composition, reporting lines, how best to bring together different perspectives, and processes that might be used to identify gaps in science that need to be filled to underpin policy.

More generally, the sub-group will examine the role and position of science advisory bodies—taking into consideration the new Defra advisory structure with the Chief Scientific Adviser and the Science Advisory Council in place—and will develop a generic best practice model for securing science advice for future use across Defra.

## 2. Background of bTB Groups

- 2.1 There are a number of bodies dealing with the issue of bTB on behalf of Defra. The groups (internal and external to Defra) feed advice and information into either the research or policy development areas as indicated on Figure 1. There has been a steady increase in the number of groups over the past seven years, as shown in Figure 2. In general, the establishment of these groups has been either in response to recommendations made in official reports or as a result of them 'spawning' off existing groups. It appears that these groups have been established without a strategic framework ever being put in place.
- 2.2 Brief descriptions of the various groups are given below:

**Independent Scientific Group on Cattle TB (ISG):** One of the recommendations made in the Krebs report on TB in cattle and badgers (published in December 1997) was to undertake a randomised badger culling trial (RBCT) to test the effectiveness of different strategies and to provide unambiguous evidence of the role of badgers in bTB. The ISG was established in February 1998 to oversee this work and to report directly to MAFF (later Defra) Ministers on the trial's progress. The group is chaired by Professor John Bourne. A few months after their establishment, the ISG's terms of reference were expanded to include, "advising, as requested, on related issues". Ultimately this included implementing the epidemiological questionnaires and the Road Traffic Accident surveys. The ISG is due to complete its work in early 2007 following final reporting of the RBCT.

**TB Forum:** Following the publication of the House of Commons Fifth Agriculture Select Committee report on Badgers and Bovine TB (April 1999) the TB Forum was established. The first meeting of the forum took place in September 1999. It aims to bring together experts and interested parties to consider new measures which might be taken to control TB in cattle. The forum predominantly provides an opportunity for stakeholders to discuss emerging results and does not formally report to anyone.

**Vaccine Steering Group:** The group (established June 2000) is an inter-departmental steering group set up to identify administrative and legal procedures for the authorisation for use of a potential vaccine and to inform the Chief Scientific Adviser (CSA), Chief Veterinary Officer (CVO) and Director of the TSE and Zoonoses Directorate on emerging findings on TB research funded by Defra. The CVO chairs the Vaccine Steering Group which provides a link between vaccine development research and policy.

**Vaccine Programme Advisory Group:** The group provides advice on the science needed to progress towards a vaccine for use in the field and is a successor to the Vaccine Scoping Study Sub-Committee, which was set up by the ISG in January 2002. The group reports to the CVO.

**CCS2005 Working Group:** Prior to the Krebs report MAFF collected information from all farms experiencing a TB breakdown, using a structured form referred to as TB49 to aid incident management. The Krebs report recommended that the form be redesigned to gather epidemiology data as well. However, the new TB99 form proved to be time consuming to complete and a shortened, more focussed Case Control Study Form (CCS2005) is now in use. The work of the CCS2005 Working Group follows on from that of the TB99 Working Group, continuing to oversee the procedures and results of this new questionnaire. The aim of the group is to identify and quantify risk factors, particularly associated with cattle husbandry, which have been postulated as pre-disposing some farms to TB outbreaks. The working group reports to the TB Division's project boards.

**TB strategy core stakeholder group:** The group was set up to steer the development and communication of a new Strategic Framework for bTB. Now complete, the group will act as an interim body to steer development of a new advisory group. In addition, the TB pre-movement testing stakeholder sub-group has been set up to develop a detailed proposal to implement pre-movement testing of cattle for bTB. The sub-group is due to report in Spring 2005.

- 2.3 In addition to the groups listed above, a wide range of research projects are being conducted on bTB by the Veterinary Laboratories Agency and the Central Science Laboratory on behalf of Defra. Research projects include work on vaccines and diagnostics, epidemiology, cattle pathogenesis and badger ecology.

### **3. Recent reviews of the governance of bTB and badgers**

- 3.1 A number of reviews, on both science and process issues, have been conducted over recent years on bTB and badgers, but more significantly by the House of Commons Select Committees and by a group led by Professor Charles Godfray. The Independent Scientific Group on cattle TB (ISG) has also produced regular published reports.
- 3.2 The House of Commons Environment, Food and Rural Affairs Committee and its predecessor the House of Commons Agriculture Committee have published four reports on badgers and bovine TB: July 1999, December 2000, April 2003 and July 2004. None of these reports have looked at governance issues in any great detail.
- 3.3 In 2003, the Chief Scientific Adviser (CSA) Howard Dalton commissioned the Godfray group to undertake a review on the progress of the randomised badger culling trial (RBCT) and advise Defra on the prospects for the experiment achieving its objectives. In March 2004, this group submitted a report to Mr Ben Bradshaw MP (Defra Minister for Nature Conservation and Fisheries) titled "Independent Scientific Review of the Randomised Badger Culling Trial and Associated Epidemiological Research" (the 'Godfray Report'). The report also examined the current governance of bTB advice with respect to the ISG. Significantly, the report recommended (paragraph 2.3.25) that the ISG should in future report initially to the CSA, who should arrange for its advice to be reviewed properly before its submission to Ministers.
- 3.4 The Godfray report also made several generic recommendations regarding the management of large science-based projects. These included:
- An independent scientific group should be involved in providing expert advice (paragraph 4.7.7);
  - The independent scientific group should have a less direct management role (paragraph 4.7.3);
  - A single relatively senior figure within Defra should take ownership of the whole research programme. This person should have a strong science background and should report to the CSA (paragraph 4.7.7);
  - The CSA should have overall responsibility for ensuring the quality and policy-relevance of the science produced (executive summary and paragraph 4.7.8); and
  - The independent scientific group should report through the CSA to Ministers. However, it should retain right of access to the Minister should it be dissatisfied with the way the CSA deals with its recommendations (paragraph 2.3.25).

#### 4. Initial advice given by the SAC on draft bTB Strategy document

- 4.1 Our sub-group was invited to make an initial comment on Defra's plans to develop a new bTB strategy for Great Britain. This advice was presented to the CSA at the SAC Open Meeting on 6<sup>th</sup> January 2005 (see paper **SAC(04)28** paragraphs 11 to 13).
- 4.2 We noted that the SAC was helping the CSA to consider options and that if it were agreed that a new science advisory body on bTB were required then the SAC (through the SAC-G sub-group) would provide advice on reporting channels, advisory body composition and terms of reference etc. The sub-group also highlighted that links between any such science advisory body and the CSA and CVO (and any other planned policy advisory bodies) should be made clear and be agreed from the outset.
- 4.3 This initial advice has been taken forward in this report.

#### 5. Overview of the new Government strategic framework for the sustainable control of bTB in Great Britain

- 5.1 Defra's bTB Strategic Framework document (published 1<sup>st</sup> March 2005) sets out a ten-year Government strategic framework for the control of TB in cattle and farmed deer within Great Britain.  
(<http://www.defra.gov.uk/animalh/tb/strategy/newstrategy.htm>)
- 5.2 The Strategic Framework proposes the creation of a new advisory non-departmental public body (NDPB), the 'National advisory group on bTB'; and to review and establish new arrangements for securing independent science advice .
- 5.3 The Strategic Framework acknowledges that the SAC is currently advising the CSA on developing future arrangements for securing scientific advice on bTB and will be providing advice on the new science advisory body's reporting channels, composition, and terms of reference (paragraph 4.6.4 of the Strategic Framework).

#### 6. Current structure of bTB groups and Defra's proposals

- 6.1 As noted above, the current structure of groups dealing with bTB issues has expanded considerably without a clear strategic framework. This has led to a somewhat piecemeal approach, with groups being created to fill gaps as they are identified and with some *ad-hoc* committees having been established without a clear mechanism for winding them down. **We thus welcome Defra's efforts to establish a clear framework for the future.**
- 6.2 While we accept that the system is in transition, it is still worth reflecting on the current advice structure.
  - The ISG and the pre-movement testing stakeholder group both report directly to Defra Ministers without reference to either the CSA or the CVO. The remainder primarily report to the CVO.
  - Members of the ISG sit on all of the key bodies, with the exception of the TB strategy core stakeholder group and sub-group. The ISG also has involvement in research groups, as well as being the key independent scientific advisory body.
  - The only apparent involvement of the CSA shown on the bTB map is that the Vaccine Steering Group reports through the CSA and other senior officials to Ministers. However, the CSA also funds several veterinary

research projects on bTB and is also involved with the steering and reporting of these projects.

6.3 The proposed structure of bodies dealing with bTB, as outlined in Defra's bTB Strategic Framework document and in discussions with Defra staff, is shown in Figure 3. The key observations from this map include:

- Two principal advisory bodies to be created;
  - > The 'National advisory group on bTB': an NDPB whose overall objective would be to advise the CVO and Ministers on policy options and delivery developments, and on the need for any further areas of work that may be required; and
  - > A science advisory committee (possibly as an NDPB although this is not stated in the Strategic Framework document); Defra have specifically sought our advice on the reporting lines, terms of reference and composition of this body.
- Discussions with Defra staff indicate that the National advisory group on bTB would also include significant input from stakeholder organisations to continue on-going discussions with Defra.
- Defra staff have also indicated a requirement for a valuations advisory committee (not mentioned specifically in the Strategic Framework document) advising on compensation for farmers affected by TB in their cattle. It is understood that this body would also advise on compensation for other livestock diseases. The exact structure of this committee has not yet been decided by Defra.
- Defra staff indicate that the Vaccine Steering Group will remain unchanged within the structure and that the Vaccine Programme Advisory Group will be incorporated into the set of research groups managed by the Veterinary Research Division in Defra. In addition, it is also proposed by Defra that the work of the CCS2005 Working Group will be taken up within the Defra TB Division.
- The TB Forum will be wound down at the end of 2005 and replaced by an annual stakeholder conference on bTB with a clear focus on exchange of information on bTB developments.
- The State Veterinary Service (SVS) will become an Executive Agency from April 2005. Defra indicate that the move to agency status for the SVS will provide the flexibilities needed to create an organisation focussed on delivery.

## 7. SAC-G proposals on the structure of bTB advisory groups

7.1 We recognise from our discussions with Defra officials and with members of the ISG that **Defra does have a substantive need for independent advice on bovine TB issues**. A core part of this is an on-going requirement for advice on science to inform policy decisions. The science advice should include a balance of both natural and social sciences (see further comments on the role of social sciences in section 9). **We recommend the establishment of a new bTB Science Advisory Body (bTB SAB) to provide such advice.**

7.2 **We welcome Defra's plans for a new advisory NDPB; the 'National advisory group on bTB'**. However, to enable Defra to address bTB issues effectively we believe that the National advisory group on bTB should act as an

overarching NDPB, receiving information and advice from the proposed bTB SAB and any other committees that Defra require, such as a separate stakeholder committee. We believe that this will provide the breadth and clarity of thought that Defra requires to inform bTB policy.

- 7.3 We believe that our proposal for the National advisory group on bTB to undertake coordination and management of a number of committees will result in a stronger and more integrated structure. We believe that the communication links between the committees and the National advisory group on bTB, and between these bodies and Defra will be far more robust than if several separate bodies are created.
- 7.4 Our suggested structure would also be flexible enough to accommodate new areas of work that may arise from time to time; and would mean that such work would neither need to be shoehorned into the existing bodies nor lead to the creation of further, separate bodies.
- 7.5 We firmly believe that should numerous freestanding bodies be created then each body would, at some point, attempt to position itself as the lead body advising Defra on bTB issues. The long-term consequence is likely to be a return to an overly complex and sometimes adversarial advice structure similar to that which is currently in place.
- 7.6 Our proposed reporting lines of the National advisory group on bTB and its committees, and its integration within the structure of bodies dealing with bTB, are shown in Figure 4. We propose that the National advisory group on bTB comprise an independent chairperson and key representatives from each of the committees (including the committee chairs), counting approximately ten people in total. The CVO and the CSA should attend the National advisory group meetings as ex-officio members in order to gain a comprehensive understanding of the key issues. The National advisory group should report through the CVO to Ministers. The Secretariat for the group and its committees is expected to be provided by Defra's TB Division.
- 7.7 **We propose that the bTB SAB should report directly to the CSA as well as to the National advisory group on bTB**, and that the scientific advice should be made available in the public domain. This structure would allow the CSA to be presented with the detailed scientific information direct from the scientists, and to undertake any expert peer review of this science as might be required prior to discussion at the National advisory group meetings. On giving advice to Ministers the CSA would thus have a clear understanding of the scientific advice, being able to place that advice in the context of other stakeholder and policy issues. This structure would help to allay any fears that science might be used selectively to fit the needs of a pre-determined policy approach.
- 7.8 The new science advisory body (bTB SAB) should help to ensure the quality and appropriateness of Defra's bTB science and the use of that science. The body should have a strategic overview of all relevant bTB research and should be involved in the interpretation of bTB-related research. We propose that the body advise the CSA, and the CVO through the National advisory group, on emerging findings on bTB related research, a role currently undertaken by the Vaccine Steering Group. We also propose that the bTB SAB takes over the role of the Vaccine Programme Advisory Group on providing advice on the science needed to progress towards a vaccine for use in the field. Further recommendations for the bTB SAB are included in Section 11 of this report.
- 7.9 Another important aspect of the new advice structure will be the active engagement of stakeholders. A Stakeholder advisory committee should thus also be established and report directly to the National advisory group. Membership of the Stakeholder advisory committee should include farmers,

animal welfare representatives, veterinary surgeons, countryside conservation representatives, and consumers/ lay members. This Stakeholder advisory committee could assist the National advisory group in developing a regional approach to bTB in accordance with the strategic framework.

- 7.10 We expect the CSA to draw upon the advice and expertise from the Science Advisory Council (SAC) as required, the SAC adopting an advice and audit role on the work of the bTB SAB.

## 8. The ISG experience

- 8.1 The Independent Scientific Group on cattle TB (ISG) was originally established to oversee and advise on the randomised badger culling trial (RBCT). However, the group's remit significantly expanded when their terms of reference were later extended to include, "advising, as requested, on related issues". This open-ended statement has resulted in the ISG becoming more widely involved in bTB, conducting directly some of the core research, whilst sitting on many of the advisory bodies and advising on policy.
- 8.2 The Godfray Report indicated that, "it has meant the ISG, while remaining independent of Defra, has become very close to the experiment itself which may have hindered their ability, or stakeholders' perception of their ability, to give strategic advice to Defra on the progress of the RBCT" (paragraph 4.7.3).
- 8.3 The ISG analyses and interprets scientific data and provides this information directly to Ministers. Whilst the ISG firmly believe that they are simply presenting the data to Ministers, we believe that the scientific interpretation, conclusions and opinions provided by the ISG to Ministers almost certainly contributes directly to policy. This issue was also raised in the Godfray Report which stated that, "[the] links between policy formulation by Defra and the scientific input from the ISG have not been as seamless as would be desirable" (executive summary).
- 8.4 At our sub-group meeting on 9<sup>th</sup> February 2005, we suggested to the ISG that the science advisory body to succeed the ISG would most probably report through the CSA and/or the CVO to Ministers. The ISG raised a concern that if the direct access link to Ministers were removed, then the science could potentially be used selectively by Defra staff to inform a pre-determined policy. We understand this perception, and its inherent dangers for science, and have addressed this in paragraph 7.7.
- 8.5 The membership of the ISG has remained largely unchanged since its establishment seven years ago. In the ISG's opinion, the group has worked well because it is a small and consistent group of seven scientists, complemented by *ad hoc* sub-groups with co-opted members. However, there are potential dangers as well as strengths in such a small and consistent group (e.g. breadth of expertise, access to developing areas). Our proposed National advisory group on bTB with its sub-committee structure should provide a framework that will be amenable to change over time, if and as required.

## 9. The role of social science

- 9.1 It is clear that there is still some way to go before a science based 'solution' to bTB can be realised. However, it is evident that whatever solution is developed it will need to be based on both social and natural science inputs. Social science should be a core element in the policy formulation stage and

should be used in framing the policy questions that need to be asked or the research that should be undertaken. **Social sciences should not just be considered in the context of 'end of pipe' policy implementation.**

- 9.2 The evolution of the Ministry of Agriculture, Fisheries and Food (MAFF) to Defra changed the objectives and approach of tackling bTB. Whereas MAFF focused on farming and food, Defra has a broader objective of sustainable development and therefore takes into account economic, social and environmental interests. However, the Departmental change does not appear to have been equally matched by a change to the scientific approach. For example, there is only a very limited representation of social sciences within bTB policy development.
- 9.3 It is welcomed that Defra does recognise the need to better understand the views of the wider public (in addition to those of more established stakeholders) and that it is now committed to exploring this as an issue for bTB (paragraph 4.7.5 of the Strategic Framework document). We note that the Department of Health is already consulted on bTB policies with respect to public health.
- 9.4 Defra has also funded research on the economic impacts of bTB, including cost benefit analysis of badger culling options and how much society is willing to pay to protect the badger. In developing a transparent process for policy making in bTB, Defra will be incorporating the economic model into the disease model, once completed in 2006 (paragraph 4.3.4 of the Strategic Framework document).
- 9.5 Our sub-group believes that there are three principal issues for social sciences to address with respect to bTB:
- Public expectations and governance of policy in this field;
  - The social acceptability (to stakeholders and the broader public) of various management and control possibilities; and
  - The potential environmental and economic impacts of alternative measures to control bTB.

## 10. Use of science advice in policy development

- 10.1 The Office of Science and Technology's "Code of Practice for Scientific Advisory Committees" dated December 2001, indicates that a scientific advisory committee is generally responsible for providing scientific input to assist policy making or analysis. Nevertheless, the code of practice also indicates that it is acceptable for a science advisory committee to provide policy options for the Government or to comment on policy options put before it by government.
- 10.2 We believe, however, that it is desirable for independent scientific advice to be kept distinct from policy advice, as a transparent and separately accountable stream of activity. There should also be clear distinctions between scientific evidence (e.g. hard experimental data) and scientific judgement or opinion. That said, the process of developing scientific advice and research agendas must not be isolated from policy development. The science being undertaken and the questions being asked must be responsive to changing public priorities, and policy development should be continually informed of the changing state of knowledge.

- 10.3 **We recommend therefore that scientific advice should be semi-autonomous, subject to its own separate lines of accountability, but strategically plugged into policy development.**
- 10.4 **The full scientific evidence should be made available both to the CSA, to external bodies for review, and to the public to support Defra's accessibility commitment on working openly and honestly.** We understand that Defra is currently running a pilot exercise in which Defra policy staff are encouraged to set out Ministerial submissions in two stages; the first stage is factual and evidence based, the second stage is a synthesised view and includes policy advice. This we see as a positive step.
- 10.5 Policy decisions often have to be made by Ministers without, or in advance of, definitive scientific 'answers'. It is important, in such cases, that the expert advice be suitably qualified concerning its limits, its uncertainties and its partiality to ensure that neither the Ministers nor the public are misled. We perceive that this can best be achieved through the two stage submission process.
- 10.6 It is clear that science must not be manipulated to fit in with policy; the longer term credibility of both would suffer. It is critical that the scientific evidence that feeds into policy should be transparent and accessible for independent review. It is conceivable that the same body of scientific evidence may support opposing viewpoints. Moreover, final policy may be driven by other considerations in addition to scientific input and it should be recognised that it is not a goal of the policy-making process to reconcile the scientific input with final policy decisions.

## **11. Specifics of our Science Advisory Body (bTB SAB) Proposal**

- 11.1 We propose that the National advisory group on bTB should co-ordinate and oversee a number of committees, including a science advisory body (bTB Science Advisory Body or 'bTB SAB'), as opposed to the creation of separate bodies.
- 11.2 We also propose that the bTB SAB should report to both the CSA and the National advisory group on bTB to ensure that the CSA has a clear understanding of the scientific advice in the context of other stakeholder and policy issues, and to prevent any 'selective picking' of science. The new bTB SAB should not report directly to Ministers.
- 11.3 **The new bTB SAB should not itself own or conduct any component of bTB science; it should advise on the commissioning of research and undertake the review, interpretation and synthesis of research. It will be imperative that the bTB SAB have uninhibited access to data and information contained within Defra TB-related science and research programme.**
- 11.4 **Our sub-group recommends that the membership of the bTB SAB should cover a breadth of expertise to include natural scientists, social scientists and veterinarians.** Whilst refreshment rate of members should ideally be in the order of every three years, we recognise that this may not be possible due to the limited number of experts available in this field. The Chair of the committee should also sit on the National advisory group on bTB, together with approximately two other members of the committee.
- 11.5 We recognise that the workload of the committee would be considerable and would need significant support from a substantive Secretariat.

- 11.6 A peer review of the National advisory group on bTB and its committees should be undertaken every five years. The reviews should be undertaken in accordance with the guidance on NDPBs published by the Cabinet Office (revised September 2004). The CSA should be involved in the peer review of the bTB SAB.
- 11.7 The new Defra Strategic Framework for the sustainable control of bTB is for a period of ten years. It is expected that following the second peer review of the National advisory group on bTB and its committees, they would be wound down and the structure of bTB bodies be re-organised to correspond with the next bTB Strategic Framework document in 2015, as required.
- 11.8 **The new bTB Science Advisory Body (bTB SAB) should be established in consultation with the CSA. The CSA should advise on terms of reference, membership and peer review of the body. The CSA should also draw upon the advice and expertise from the Science Advisory Council (SAC) as required, the SAC adopting an advice and audit role on the work of the bTB SAB.**
- 11.9 The SAC reserves the right to follow-up on the recommendations made by SAC-G over the next few years.
- 11.10 We suggest the following terms of reference for the bTB SAB:
- a) The Bovine Tuberculosis Science Advisory Body (bTB SAB) will help to ensure the quality and appropriateness of Defra's scientific activities and use of science\* on bovine tuberculosis (bTB). The committee will provide strategic advice on Defra's bTB science activities and their relationship with Defra's bTB policy goals and the wider UK and international science base and horizons.
- To achieve this it will:
- Provide independent and published advice to the Chief Scientific Adviser (CSA), to the National advisory group on bTB, and to the Chief Veterinary Officer (CVO) through the National advisory group on bTB on:
    - > The strategic direction of, and priorities for, all Defra-funded bTB-related scientific research;
    - > Emerging findings on domestic and international bTB research;
    - > The commissioning of bTB scientific research;
    - > The broader landscape of science activities to help develop bTB policy;
  - Provide independent interpretation of bTB-related research;
  - Undertake an annual review of scientific evidence on bTB; and
  - Provide advice on the science needed to progress towards a vaccine for use in the field to the Vaccine Steering Group, CSA and National advisory group on bTB.
- b) The bTB SAB should undergo a peer review every five years, in accordance with Cabinet Office guidance. The committee should be wound down *or* re-organised after ten years following the publication of the TB Strategic Framework document in 2015.

\* Science = to embrace both social and natural sciences

## 12. Generic models and lessons learnt

12.1 Through our work, we have identified a number of lessons from the governance of the bTB policy area which could help Defra develop best practice for securing long-term science advice on existing and future major science issues. These include:

- **Development of a strategic framework for advice:** It is imperative that the policy area under consideration is supported by a clear and strategic advice structure. Without one, there is the potential that groups and *ad-hoc* committees will be created in an uncoordinated manner and with no clear mechanisms for winding them down. A clear structure would improve communication links between the groups themselves, and between the groups and Defra.
- **Reporting lines and greater involvement of the CSA:** Advisory bodies should not report direct to Ministers, as this would result in a top-down advice structure with the Ministers reporting down to the CSA and Directors General. To ensure consistent and high-quality science and policy within Defra, it is essential that science advisory bodies report to the CSA and the relevant Director General, who then report science upwards to Ministers.
- **Maintaining independence of a science advisory body:** A science advisory body should not itself own or conduct any of the core research, but should advise the CSA and Defra on what research it believes should be undertaken. The body should, however, provide independent interpretation of research done by others. The advice provided by such a body should normally be made publicly available.

12.2 On the basis of the above, we have produced a good practice map (Figure 5) showing a proposed structure of bodies in a generic policy area on securing science advice. The key observations from this map include:

- One independent principal advisory group with several standing committees, including science;
- The principal advisory group reporting to the Director General of the policy division, and through the Director General to Ministers;
- The science advisory body reporting to both the CSA and to the principal advisory group (to allay any fears that only elements of the science will be picked out to fit a pre-determined policy);
- The CSA to be involved in setting up the science advisory body's terms of reference, its membership and arrangement for its peer review; and
- Defra's Science Advisory Council reserve the right to adopt an independent advice and audit role of the science advisory body.

12.3 The overall role of any science advisory body under the system proposed would be similar to that of the bTB Science Advisory Body: to help ensure the quality and appropriateness of Defra's scientific activities in the policy area and to have a strategic overview of its research (paragraph 11.9).

12.4 The radioactive waste management policy area is an example of where this advice could potentially be applied. The Committee on Radioactive Waste Management (CoRWM), an NDPB advising Defra, is a key part of a relatively new advisory structure that is starting to evolve.

- At present, CoRWM reports directly to Ministers and not to either the CSA or to Defra's Environment Director General. We would recommend that CoRWM's principal reporting line should be to the Environment Director

General, and through the Director General to Ministers. All science aspects of CORWM's work should also be reported to the CSA.

- CoRWM has set up a Quality Assurance Working Group principally for its scientific input. We understand that the CSA has been involved in recommending members for this new group. Nevertheless, we would recommend that the sub-committee should also formally report its findings to the CSA and who could also be involved in making arrangements for its peer review.
- Finally, the House of Lords Science and Technology Committee Fifth Report on "Radioactive Waste Management" (December 2004) stated that the composition of the Committee lacked certain areas of scientific expertise which could have been recognised at its conception had the CSA been involved in its establishment. This highlights the importance of the CSA's role in setting up science advisory bodies.

SAC SECRETARIAT

**Acronyms**

bTB	-bovine tuberculosis
bTB SAB	-bovine tuberculosis Science Advisory Body
CCS2005	-Case Control Study 2005
CoRWM	-Committee on Radioactive Waste Management
CSA	-Chief Scientific Advisor
CVO	-Chief Veterinary Officer
Defra	-Department for Environment Food and Rural Affairs
ISG	-Independent Scientific Group on Cattle TB
MAFF	-Ministry of Agriculture, Fisheries and Food
MP	-Member of Parliament
NDPB	-Non-Departmental Public Body
RBCT	-Randomised Badger Culling Trial
SAC	-Science Advisory Council
SAC-G	-Science Advisory Council Governance sub-group
TB	-Tuberculosis
TB99	-bTB epidemiological questionnaire
TB49	-bTB incident management form
TSE	- Transmissible Spongiform Encephalopathies