

Science Advisory Council

Annual Report – 1 April 2015 to 31 March 2016

September 2016

Introduction

This report provides a review of Defra's Science Advisory Council (SAC) and an evaluation and assessment of the impact of the Council's activities over the reporting period. It also discusses the Council's modes of operation and interaction with Defra. The report will be published on the SAC website to meet the Government's requirements of openness and transparency.

SAC is a Non Departmental Public Body (NDPB) which provides independent and scientific support, advice and challenge to Defra to assist in its policy development. It also helps assure the Department's evidence programmes meet Defra's current and future needs. [Terms of reference for the SAC](#) can be found online.

SAC membership

The SAC comprises of eight members, including the Chair, Professor Charles Godfray. During the reporting period the SAC has seen the retirement of five members and the appointment of five new members (January 2016). Full membership details may be found on the [SAC website](#).

Modes of operation

Defra deals with issues that are large-scale; often contentious; and of fundamental importance to everyone in the country. The Department has bold, ambitious goals as captured in its five-year strategy and strategic objectives. The Department has emphasised the importance of data, reducing reliance on regulation and a focus on the end users of our services as drivers of change. SAC's agenda and operation is structured to integrate it within the Department's workings, but retaining its capacity to provide critical challenge.

The SAC's agenda is set by discussion between Defra and the Council itself. SAC is both reactive to Defra's needs and raises issues itself that it believes would be helpful for the Department to consider. In interactions with Defra's Chief Scientific Advisor (CSA) and other officials the SAC uses its professional networks and expertise to alert the Department to issues and advances that may affect Defra's evidence gathering and needs.

Much of Defra's evidence gathering relates to policy in both England and Wales and therefore the SAC meetings are attended by an observer of the Welsh Government to utilise the SAC advice and outputs on evidence within the Welsh policy context. To ensure appropriate links with the Northern Ireland and Scottish devolved administrations, a representative from each of the administrations has also been nominated as a SAC observer.

Over the reporting period the SAC has strived to be more visible within Defra, and, without compromising its position as an NDPB, has made clear its role as a resource that can help to improve the quality of the evidence base upon which Defra policy is built. This ambition will continue, and is particularly important at a time when the Defra Group is striving to be much more "joined up" on evidence and policy. The SAC secretariat produces a quarterly update describing SAC activities that is shared with senior Defra officials.

SAC business

To enable the SAC to take its role forward, at an appropriate strategic high level, it organises its business in four ways: principal meetings; monthly teleconferences; subgroups on specific policy/evidence areas and a Defra Official and SAC member pairing scheme. The Chair meets the Minister responsible for the SAC, on an annual basis, to discuss SAC's past and future work.

SAC activities

Topics advised on by SAC

Throughout the reporting year the SAC provided advice and challenge on a wide range of issues. Full details of these discussions are captured in [published minutes](#), a summary can be found at **Annex 1**.

A major activity SAC undertook this year was a review of Defra's expert committees (listed in **Annex 3**). [SAC reported to Defra](#) on the strengths of the current system and how it might be reformed to increase efficiency and value for money. The report described several different options for the future organisation of expert committees that the Department is currently considering.

Topics brought to SAC's attention

To ensure that it remains fully informed of Defra's key current issues, the SAC is briefed on these topics at principal meetings. The SAC provides immediate feedback on evidence related issues and considers whether the topic needs more detailed treatment at a subsequent meeting. A summary of such topics is listed at **Annex 2**.

Sub groups

The SAC establishes time-limited [sub groups](#) to carry out in-depth studies of particular topics. These are chaired by a member of the SAC and include non-SAC members, co-opted to the sub group to increase the range of expertise available. Two sub groups were convened during the reporting year: a water quality sub group and a sub group to review the scientific evidence underpinning the management of burial sites for carcasses from the 2001 Foot and Mouth Disease (FMD) outbreak. In addition there is a standing sub group that meets in the event of an exotic animal disease emergency.

Water quality sub group (SAC-EQ)

The group was created in August 2015 to focus on the science underlying the response to an outbreak of *Cryptosporidium* in drinking water supplies in the north of England. Its aim was to provide assurance to the CSA on the use of evidence and analysis relating to water quality, to discuss any issues or gaps in evidence, and to advise how they might be addressed. The [final report of the sub group](#) can be found online.

Foot and Mouth Disease Carcass Burial (SAC – FCB)

The group was set up in March 2016 to perform a scientific review of the level of risk (biological and chemical) to water quality and biosecurity at sites where livestock were buried during the foot and mouth outbreak of 2001. To date, four meetings have taken place and a final report will be presented towards the end of 2016.

Exotic disease sub-group (SAC-ED)

The sub group was first formed in 2013 in partnership with Defra's Chief Veterinary Officer. SAC-ED is a standing subgroup on exotic disease to give oversight and assurance for dealing with animal exotic disease outbreaks.

A Foot and Mouth Disease (FMD) exercise was held on 26th November 2015, attended by SAC-ED member Professor Dirk Pfeiffer. The purpose of the exercise was to test vaccination considerations and processes in the event of an outbreak of FMD and to test the recovery issues for the sector at national and local levels.

The Pairing Scheme

The SAC and Defra-official pairing scheme is designed to support communication and understanding between SAC members and Defra. It provides Defra officials with the opportunity to update SAC members on the emerging policy and evidence issues and to use the SAC member as an independent sounding board for informal advice or challenge. It provides the SAC member with an opportunity to update Defra officials on current and future work priorities for SAC and enables the SAC member to develop a detailed understanding of the policy content and associated evidence; and act as the 'SAC Champion' for a particular policy/evidence portfolio.

SAC's relationship with Defra Expert Scientific Committees

The CSA has oversight of all Defra expert scientific committees, and SAC supports and challenges the CSA in this role. Annex 3 provides a summary of each of the committees which helps to demonstrate the breadth of work going on in the Defra Advisory committee structure.

Representative activities

The Chair

The Chair represents the Defra SAC at meetings held by the Government Chief Scientific Adviser (GCSA) which provides an opportunity to be briefed by the GCSA on new developments and emerging cross-cutting policy issues. Throughout the reporting period the SAC Chair has also attended a number of high level meetings in order to make wider links for SAC and obtain information of relevance to SAC's activities. Other activities have included, addressing the Defra Evidence and Analysis Steering Group, speaking at the House of Lords Science and Technology Committee seminar and visiting Derbyshire farms to see and discuss the current major concerns of the industry in relation to animal health and welfare.

Members

SAC members also get involved in a number of additional activities relating to Defra. These are varied in range and typically relate to the SAC members expertise. To highlight one example: Sarah Whatmore, in relation to a HEIF Oxford-Defra fellowship exchange, spent one day a week in Defra, shadowing the development of the Food and Farming 25 year plan.

Closing remarks

In the coming year, the SAC will continue to support Defra in deciding what evidence it needs, now and in the future, and how it should obtain and use it. It is fully cognisant of the imperative of obtaining the greatest value for money in commissioning evidence projects, and of harvesting evidence from the widest array of possible sources. It also is aware of the challenges and opportunities arising from the decision to leave the European Union and the importance of ensuring the strongest evidence base to support the many policy decisions that will need to be made after exit.

Annex 1 – overview of discussion at principal meetings and teleconferences

Review of the Defra science advisory committee landscape

- The SAC carried out a review of the Defra science advisory committee landscape, in particular setting out options for future operating models. SAC reviewed the current scientific committee landscape to determine and recommend how best to develop a more connected system of expert advisory committees that is aligned to the structure of Defra.
- The review focussed on a high-level examination of questions that concentrated on strategic issues and principles. SAC reported its findings and conclusions to the CSA in March 2016. SAC's report is available on the [website](#).

Defra Strategy, 25 year Environment Plan

- SAC was updated on the development of the 25-year environment plan. The plan, which is being developed in response to three reports by the Natural Capital Committee on the 'State of Natural Capital' will aim to create the best environment of any country of our sort and will be based around the building blocks of i) river catchments; and ii) landscapes.
- During discussion, SAC raised a range of points: The importance of making use of lessons learnt; the need for community level buy-in and the challenge of developing local interest and engagement; the language and style of the report should be carefully managed to ensure maximum buy-in; the importance of bringing together natural science with the socio political process, and; the importance of including marine and coastal as part of the environment.
- Whilst out of scope of the reporting period, the SAC met with the then Parliamentary Under Secretary of State for Environment and Rural Affairs, Rory Stewart MP, in May 2016 who confirmed he would value the SAC's help with the expert review and scrutiny of the 25 Year Environment Plan.

Defra data programme

- SAC was updated on the development of a new Defra Data Programme which has the aim of publishing Defra data and improving ways of working/technology to drive better results for Defra, and to support Defra sectors like farming, food and the environment.
- The Chair confirmed a huge level of SAC support for the Data Programme work. SAC will continue to liaise closely with the Data Team on next steps and the possibility of setting up a SAC sub-group to support the work.

Hazardous Substances Advisory Committee (HSAC) paper on quality standards for evidence

- Following HSAC's consultation with SAC during the last reporting period a revised paper was presented to SAC along with an explanation of how HSAC have taken account of SAC's previous comments.
- SAC acknowledged that the revised paper was very good and congratulated the HSAC authors on a good response to SAC's previous comments. They also supported HSAC's plans to circulate the paper to other expert committees to enable them to adapt and adopt for their own working practices.

Assurance of the Evidence Action Plans (EAP's)

- Defra asked SAC to provide an assurance role to the EAPs with specific focus on providing an external perspective, strategic overview of cross-cutting issues, and advising on strategic prioritisation.
- SAC's first formal engagement commenced with a workshop in April 2015 focussing on the early drafts of Part A of the EAPs. Further discussion took place in July 2015 whereby SAC was presented with the draft summary slides for each of the nine EAPs. SAC considered how these would be received by the wider community and gave specific feedback on each of the slides.
- The CSA updated SAC on EAP's in February 2016. The EAPs, originally reviewed by SAC in 2015, require further review to reflect the Defra restructuring process. Whilst the subject matter remains robust and clearly identifies what Defra requires in terms of research and development (R&D) the wording of the EAPs and the key questions need to be appraised to ensure they reflect the new Defra Group structure. The CSA will notify SAC when EAP challenge or specific advice is required.

Flood Resilience Science Advisory Group

- Professor Whatmore, SAC member, updated SAC on the Cabinet Office led Flood Resilience Science Advisory Group, which is chaired by the Government Chief Scientific Adviser, Sir Mark Walport, with Professor Godfray as Deputy Chair. It was agreed that Professor Godfray and Professor Whatmore will provide regular updates to SAC on the Review.
- It is likely that some of the issues raised during the review may fall outside the remit of the Flood Resilience Science Advisory Group and require Defra SAC input.

Agri-environment schemes

- SAC was introduced to the monitoring and evaluation plans for the agri-environment schemes with the aim of seeking SAC's advice on the broad structure, approaches and governance arrangements planned.

- In response, the key topic for discussion was about how the monitoring should be undertaken and at what scale. SAC raised a number of things for Defra officials to consider, such as the potential to include randomised control trials, and the use of modelling to inform the level of monitoring to undertake. SAC also suggested that it would be valuable for Defra to consider using volunteers in monitoring programmes; and different approaches to obtaining information, such as earth observations.

Defra's evidence statements

- SAC was provided with information on the plans for Defra evidence statements which aim to provide clear statements about the evidence base and its strength, designed for multiple audiences, for example, as a tool to communicate to external stakeholders about what Defra is doing in relation to evidence in a given policy area (as well as for internal policy use).

Bovine TB programme expert advice structure

- SAC discussed the external scientific oversight of TB evidence and the structure of a future TB advisory group. In particular, the challenge function was considered to be where such a group could really add value to Defra. The SAC offered to provide assistance where it was thought they could assist in interpreting evidence.

Geography and Earth Observations

- Defra sought views and advice from SAC on the best use of Earth Observation (EO) and Geography skills.
- SAC suggested that there may be a role for EO in environmental evaluation, particularly when combined with other sources of data. SAC noted that one of the big challenges will be the integration of EO data with other data sources; and also the production of maps and presentation of data in a way that clearly shows any uncertainty in the data.

Monitoring and Surveillance Work

- Discussion focussed on the proposed changes to monitoring within Defra and sought views and advice from SAC on future approaches to monitoring and data analysis.
- SAC made a number of observations ranging from how Defra needs to be clear on how the monitoring informs the decision that is being made / or answers sought; the role of modelling, and highlighting that an exercise on horizon scanning of future technologies might be helpful to inform the collection of samples today that could be stored for use in the future with new technologies.
- SAC noted that one of the challenges with using new tools and technologies is the legal challenge of having robust data that is scientifically defensible in relation to statutory requirements. SAC could have a role in looking at what evidence base would

be needed to enable the regulatory system to have confidence in new techniques to collect data.

- In concluding the discussion, Defra thanked SAC for their comments which enabled Defra to be more confident in taking the monitoring strategy forward.

Anti-Microbial Resistance

SAC was updated on the Veterinary Medicines Directorate (VMD) / Defra's activities on Anti-Microbial Resistance (AMR), and explored whether there is any scope for SAC involvement in these. This consideration is ongoing.

Annex 2: Issues brought to SAC's attention throughout the reporting year

The following topics were brought, informally, to the SAC's attention throughout the reporting year. It should be noted that this is a retrospective list and as such comments and policy may have moved on since updates were provided to members of the SAC.

- Defra's development of a five year strategy: its purpose, objectives and indicators of success.
- Alongside the main strategy, the development of a 25-year food and farming strategy. The industry-led 25-year plan will detail the country's ambitions for food and farming, setting out how we can grow more, buy more and sell more British food. In addition, Defra is also developing a 25 year biodiversity strategy.
- The CSA chaired the Food Research Partnership meeting, attended by representatives from academia and industry. At the time of the update, the CSA suggested that a SAC member may wish to observe a future meeting.
- In addition to his role on the Nurse Review reference group, the CSA discussed, with the Nurse Review joint agendas between government departments and research councils. The Review, led by Sir Paul Nurse, will assess, with Research Councils, how they can evolve to support research in the most effective ways.
- Oriental chestnut gall wasp, an insect of Asian origin which affects sweet chestnut trees was confirmed in Kent (June 2015). To help control the infection, affected trees were felled.
- Air quality is a rising issue for Defra, particularly in relation to meeting compliance with EU regulations on NO₂ concentrations. During the discussion, it was agreed that there would be no specific role required from SAC given the existing Defra Air Quality Expert Group (AQEG) although it might be valuable for the AQEG chair to provide SAC with an update on the work that AQEG are doing to explore if AQEG require any support from SAC. The CSA outlined the importance of building a rationale for air quality policy, noting the difficulties around linking modelling to policy response. The cross-Whitehall challenge of developing policies for high quality air, whilst achieving other government growth priorities was noted.
- The CSA updated SAC on his visit to Vietnam and attendance at the International Resource Panel. As an outcome of the update, the CSA will consider the SAC's offer to provide an opinion on UK engagement.
- The CSA attended the Adaptation Sub-Committee on 28th February 2016 which aims to run climate change projections for 2018. It is not envisaged that SAC will have a main role in the development of the climate change projections, but the CSA will keep the Council informed on developments and seek input where necessary.

- Transformational changes in the department are ongoing and SAC will continue to be updated when information is available to share.
- Earth observations and data continue to be of importance for Defra.
- Defra launched a unified strategy on 1st February 2016. The strategy, which will run until 2020, includes the shared vision of 'Creating a great place for living'. It will include: four impact objectives (Environment; Food and Farming; Rural; and Protection); a delivery objective; and two organisational objectives. Cutting across the strategy and underpinning the principles of the vision will be four themes: Data; Productivity; Better regulation; and Working internationally.
- A refresh of pesticides policy. While more evidence, on the use of pesticides, is available since the last review in the 1970s, the refresh will require significant resource. The Welsh Government has agreed to take part in an EU wide pesticides refresh.
- The CSA informed the group that the next annual report by the Government Chief Scientific Adviser (GCSA), Professor Sir Mark Walport, will focus on waste and resource efficiency and will be co-authored by the Defra CSA. During discussion, the SAC Chair identified a potential role for SAC on raising awareness of the waste and resource efficiency policy and an opportunity to involve the Research Councils was noted.
- The CSA confirmed that marine policy is a Defra priority, with the GO-Science foresight report on seas going through the Ministerial approval process (at the time of the update) and the commitment to deliver the Blue Belt manifesto. The Minister of State for Universities, Science, Research and Innovation, Jo Johnson, is keen to see the UK taking the lead in G7 discussions on a new, UN commissioned, marine assessment. SAC noted the importance of the UK taking a lead.
- The Natural Capital Committee (NCC) has been reformed under Dieter Helm, Independent Chair. The NCC continues to have an important role to play in Defra.
- The importance of keeping surveillance and monitoring close to R&D so that the impact and benefits of R&D can be measured.
- The CSA, the GCSA and Professor John Loughhead, Chief Scientific Adviser Department of Energy and Climate Change (DECC) are co-authoring a report on the technology in vehicle emissions. The CSA confirmed that there may be a role for SAC, identifying existing research material and providing assurance around the R&D;
- The Hazardous Substances Advisory Committee (HSAC) had written to the CSA, the GCSA, Duncan Wingham (Chief Executive of the Natural Environment Research Council) and Nicola Blackwood MP (Chair of the Science and Technology Select Committee) expressing concerns about the declining science and evidence budget in Defra and the impact of this on research into chemicals in the environment. The then Parliamentary Under Secretary of State for Environment and Rural Affairs Rory Stewart

MP was scheduled to attend the next HSAC meeting. It was noted that these discussions will not impact on the science and evidence budget, but will help to inform prioritisation discussions with Research Councils.

- The CSA attended a meeting (February 2016) with Sir Jeremy Heywood regarding cross-government capability on Earth Observations. The meeting was extremely positive, with discussions on joining up Earth Observations across Whitehall which would signal a step change in government capability. SAC will be kept informed on developments.
- The next GCSA annual report, co-authored by the CSA will focus on waste and resource efficiency. The CSA explained the importance of SAC being sighted to the process and having the opportunity to comment from a strategic perspective, highlighting concerns where appropriate. On 1st March, the CSA co-chaired with the GCSA a stakeholder workshop on the 2016 GCSA Waste annual report.
- The CSA presented, to the Climate Adaption Committee, on 18th February about the Met Office Hadley Centre UK Climate 2018 Programme.
- The Emerging Technology Team hosted meetings bringing together Defra Group colleagues and the DfT Drone Pathfinder Programme to investigate opportunities for this technology to support innovation and reduce burdens on farmers – particularly in relation to Precision Farming and Farm Inspections;
- The CSA attended a workshop with BIS and NERC on the future business ownership model for the Centre for Ecology and Hydrology (CEH). The CEH is an important supplier to Defra and that he or a Defra representative would continue to be involved in discussions on the future business ownership model.

Annex 3: Expert Committees

Science and evidence are at the heart of most of Defra's policies, it provides the basis for our decisions, describing current problems, offering new solutions and identifying future issues. A network of expert evidence advisory groups contributes to the support that Defra receives. Most of these committees are focused on particular fields of evidence that are important to Defra and support decision-making within specific Defra policy areas.

The CSA has oversight of the Expert Committees; an annual meeting is held between the CSA and the Chair of each committee which provides an opportunity to discuss past and future planned activities. There is also an annual forum of all Defra expert evidence advisory group Chairs aimed at facilitating networking and collaboration between the expert evidence advisory groups that exist in Defra.

Advisory Committee on Releases to the Environment (ACRE)

ACRE gives statutory advice to ministers on the risks to human health and the environment from the release of genetically modified organisms (GMOs).

Further information about ACRE can be found at:

<https://www.gov.uk/government/organisations/advisory-committee-on-releases-to-the-environment>.

Air Quality Expert Group (AQEG)

AQEG provides independent scientific advice on air quality, in particular the air pollutants contained in the Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland and those covered by the EU Directives on Ambient Air Quality. Specifically, AQEG gives advice on levels, sources, and characteristics of air pollutants in the UK. It does not advise on health impacts or air quality standards. AQEG communicates advice to Defra and the Devolved Administrations through the production of papers; both reports and shorter advice notes.

Further information about AQEG can be found at: <http://uk-air.defra.gov.uk/library/aqeg/>.

Darwin Expert Committee

The Darwin Expert Committee is a scientific expert committee managed by Defra to support the Darwin Initiative. [The Darwin Initiative](#) is a UK government-funded grants scheme that helps to protect biodiversity and the natural environment through locally-based projects worldwide. The initiative funds projects that help countries rich in biodiversity but poor in financial resources to meet their objectives under a number of biodiversity conventions.

Further information can be found at: <https://www.gov.uk/government/groups/the-darwin-initiative#darwin-expert-committee>

Expert Committee on Pesticides (ECP)

The UK Expert Committee on Pesticides (ECP) was established on 27 March 2015 to provide independent scientific advice on matters relating to the effective control of pests, including advice on approval and authorisation of pesticides. Further information about ECP can be found at:

<http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/acp>

The Farm Animal Genetic Resources Committee (FAnGR)

Provides advice to Defra and the devolved administrations in Scotland, Wales and Northern Ireland on all issues relating to farm animal genetic resources particularly its conservation and sustainable use.

Information about FAnGR Committee's recent key activities can be found at the Committee's website at: <https://www.gov.uk/government/groups/farm-animal-genetic-resources-committee-fangr>

Farm Animal Welfare Committee (FAWC)

The Farm Animal Welfare Committee (FAWC) is an expert committee that provides advice to Defra and the Devolved Administrations in Scotland and Wales on the welfare of farmed animals, including farmed animals on agricultural land, at market, in transit and at the place of slaughter.

Information about FAWC's recent advice and current activities can be found at: www.gov.uk/government/groups/farm-animal-welfare-committee-fawc

Hazardous Substances Advisory Committee (HSAC)

The Hazardous Substances Advisory Committee (HSAC) is the successor body to the Advisory Committee on Hazardous Substances (ACHS) and provides expert advice on the science behind hazardous chemicals.

Further information about HSAC can be found at: <https://www.gov.uk/government/policy-advisory-groups/hazardous-substances-advisory-committee>

Pesticides Residues in Food Committee (PRiF)

PRiF provides independent advice to the Health and Safety Executive (HSE), the Food Standards Agency (FSA), and UK Ministers on: the planning of surveillance programmes for pesticide residues in the UK food supply; the evaluation of the results; procedures for sampling and sample processing and new methods of analysis.

PRiF reports and results, and other information about surveys, can be found at: <http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF>