Natural Resources Wales
Board Meeting
4 September 2013

Paper Title	**Independent Scientific Advice, and Operational Standards and Principles in Natural Resources Wales**
Paper Reference:	**Paper NRW B (O) 31.13**
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Purpose of Paper:	**To put in place appropriate arrangements to provide independent scientific advice to help ensure the quality of our evidence.**
Recommendation:	1. To agree in principle to create an independent Science Advisory Committee. 2. To adopt the *Principles of Scientific Advice to Government* and the *Joint Code Of Practice For Research.* 3. For the Board Knowledge sub-group to work with staff on the details of implementation
Decision Required:	**Yes**

Impact: To note – all headings might not be applicable to the topic	**Impact on the Environment, Economy and Knowledge**: The proposals made will help to secure high quality evidence for natural resource management in Wales adding to the wisdom of Wales in knowledge. **Impact on Community**: The creation of a Scientific Advisory Committee will provide a valuable opportunity to engage with an important stakeholder community. It will enhance our reputation as a learning organisation. It will help us to ensure we are an evidence based organisation considering our impacts on and opportunities for, the economy.

Issue

1. The business case and consultation documents for the formation of Natural Resources Wales, set out clear aims regarding the gathering and use of evidence and delivery of advice. An early statement of intent and standards will help establish our credentials and direction in this area, aligning us with other statutory agencies and Government departments. It will also help to define our relationship with Welsh Government in the context of us providing independent scientific advice. We also need to develop an interest in Natural Resources Wales within the academic community and provide opportunities for engagement. In return, we might expect this community to advise on scientific issues, help us to horizon scan, and help us secure very necessary high quality evidence and standards resistant to challenge.

Summary

2. Over the past few years the UK Government has taken steps to ensure that independent, expert review is built into processes which rely significantly on the gathering, synthesis and interpretation of evidence to underpin important operations and policy development. Welsh Government is also engaged in this process. In response Defra and some of the statutory nature conservation agencies have supplemented their governance and advisory structures, including through the establishment of advisory committees.

3. The Welsh Government has appointed its own Chief Scientific Advisor for Wales. This Advisor is in turn supported by The Science Advisory Council for Wales.

4. Natural Resources Wales and Welsh Government are working closely together to develop a shared evidence agenda.

5. This paper describes a potential approach to setting up a Science Advisory Committee, a set of well established principles around giving independent scientific advice, and a code of good research practice.

6. In order to set the context we have used the definitions from the Welsh Government Science for Wales Delivery Plan (2013).

7. The Welsh Chief Scientific Advisor uses an all-encompassing, inclusive abbreviation for science, representing the widest possible range of subjects, to include the STEM subjects (science, technology, engineering and mathematics), including the components physics, chemistry and biology, and also computer, environmental, e-science, health and medical, and social sciences[1].

8. Science - the systematic study of the nature and behaviour of the material and physical universe; Engineering - the practical application

[1] http://wales.gov.uk/docs/det/publications/130604sciencedeliveryen.pdf

of this knowledge especially in industry and commerce; and Technology - the tangible products of science and engineering.

9. Evidence-Based Policy is a 'rigorous approach that gathers, critically appraises and uses high quality research evidence to inform policy making and professional practice', compared to 'opinion-based policy, which relies heavily on either the selective use of evidence (e.g. on single studies irrespective of quality) or on the untested views of individuals or groups, often inspired by ideological standpoints, prejudices, or speculative conjecture

Background

10. We have considered three options which were identified and evaluated with Higher Education Wales Pro Vice-Chancellors who are keen to work with us on delivering our evidence approach.

11. Scientific Advisory Committee (see Annex 1)
The primary purpose of this committee would be:
- To provide advice to Natural Resources Wales on scientific matters at a strategic level;
- To assist with reviews of the quality of Natural Resources Wales evidence using a risk based approach;
- To contribute specialist knowledge and advice on evidence standards and procedures;
- To form part of the scientific leadership structure and governance of Natural Resources Wales, including by helping us to develop an evidence strategy and plan; and
- To assist our horizon scanning.

12. We have considered two other options for delivering these roles. The first is the establishment of a paid Advisory Committee. This was discounted as it was felt that the Committee's independence may be seen to be compromised by the payments.
The second option was the appointment of a Chief Scientist. This was also discounted as it would be difficult for any individual to work across the very broad remit of the organisation.

13. *Principles of Scientific Advice to Government (see Annex 2)*
These Principles set out the rules of engagement between Government and those who provide independent scientific advice. The Chief Scientific Adviser's Guidelines are derived from these principles[2]. They include:
    - Clear roles and responsibilities – mutual respect and trust between Government and Scientific advisers;

[2] http://www.bis.gov.uk/assets/goscience/docs/g/10-669-gcsa-guidelines-scientific-engineering-advice-policy-making.pdf

- Independence – Scientific advisers to communicate their advice, publish their findings and be free of political interference (normal confidentiality working apply);
- Transparency and openness - Scientific advice to Government should be made publicly available, timing of publications discussed with Government and reasons for policy decisions made public.

These Principles would support and more clearly define our current 'no surprises' mode of operation. The Welsh Government is still considering the practicalities of implementing the code.

14. *Joint Code Of Practice For Research* (Code) *(see Annex 3)*
The Joint Code of Practice for Research relates to contractors and was developed as a framework for the proper conduct of research. It sets out the key aspects of the process and the importance of making judgements on the appropriate precautions needed in every research activity. Contractors are expected to be committed to:
    - Quality of the research process - giving confidence that the processes and procedures used to gather and interpret results are appropriate, rigorous, repeatable and auditable;
    - Quality of the science - ensuring best scientific practice is followed.

    Contractors are responsible for ensuring projects and subcontractors are compliant with the Code's provisions.

Next Steps

15. If the Board agrees the recommendation to establish an Advisory Committee, the next step will be to carry out further scoping for its objectives and mode of operation.

16. In practice all three legacy bodies operated broadly in line with the Principles and Code. The advice from *The Living Wales* procurement team was there were no issues in incorporating the principles and code into the procurement process under current tendering limits. However, there would be some implications for how we procured 'research' contracts:
    - We would need to agree a definition of 'research' so as to identify projects that could be encompassed by the Code and incorporated into the corporate planning process.
    - We would need to produce a briefing on the Code for potential contractors.
    - We would need to incorporate the Code into tender assessment criteria and contract terms and conditions. A monitoring system would have to be developed to audit compliance.

17. To adopt the Principles and Code and embed them across the organisation.

Risks

18. These proposals will help protect Natural Resources Wales against criticisms in terms of scientific leadership and standards. It is now widely accepted that an evidence-informed approach to policy-making and its implementation is most effective for good governance and for tackling increasingly complex environmental, social and economic issues. Policy-makers across government need to draw on high quality, wide-ranging and robust evidence to enable informed decision-making. A shared evidence base with Welsh Government requires transparency and consistency of approach, which would be supported by these proposals. There is considerable reputation risk associated with providing critical evidence that has not been adequately quality assured.

Financial Implications

19. Costs associated with implementation of the Principles and Code are staff time only, but will not be insignificant across several branches of Natural Resources Wales in terms of awareness raising, changes to procurement process, compliance monitoring etc. In addition, it is likely that there would be an expectation of payment of travel and subsistence, and expenses incurred to members of the Science Advisory Committee. It would also require Secretariat support.

Communications

20. There will be a need for some awareness raising and/or guidance to be circulated for science, operational and procurement teams for implementation and gradual adoption. Ideally, the Principles and Code will eventually be part of the Natural Resources Wales Induction Package.

21. Subject to Board approval we will make the requirements and associated guidance available on the Natural Resources Wales website/intranet. Staff can be made aware of the developments through line management chain, training and the Manager's Monthly Guide.

Equality Impact Assessment (EqIA)

22. It is expected that the creation of a Science Advisory Committee will need to be assessed against duties under equality legislation. In particular a recruitment process will need to be developed.

Index of Annex

Annex 1: Working Models and Membership of Science Advisory Committee.
Annex 2: Principles of Scientific Advice to Government
Annex 3: Joint Code of Practice For Research (Code)

Annex 1: Working Models and Membership of Science Advisory Committee.

We are most familiar with the Science Advisory Committee models used by Scottish Natural Heritage and Natural England which can be found at:
http://www.snh.gov.uk/about-snh/board-comm-and-mgt/scient-adv-comm/
http://www.naturalengland.org.uk/Images/science-advisory-committee-tor_tcm6-34485.pdf

Membership of a Natural Resources Wales Science Advisory Committee could comprise of the following:

- At least six external members, judged by Natural Resources Wales to offer appropriate expertise;
- Invited/co-opted members recruited on a time limited basis to offer expertise on a specific subject;
- Executive Director or Head of Evidence.

It will be a particular challenge to cover the very wide Natural Resources Wales remit so Committee members should not be confined to Welsh academic community. They should be recruited in an open and transparent way across the UK, with required competencies and declaration of interests. They would be appointed on a personal basis (not allowing nominated deputies as stand-ins) and based on their expertise and engagement with environmental issues relevant to Wales. They would be appointed for a fixed period.

There are also potential benefits if the membership overlaps with the Scientific Advisory Council for Wales, under the new Welsh Government Chief Scientist, Prof. Julie Williams. Consideration should also be given to the relationship and interaction between Natural Resources Wales specialist staff and the Science Advisory Committee. The Terms of Reference must make it clear that members are there to assist, advise, quality assure and support the work of Natural Resources Wales.

The Committee would require Secretariat support. Meetings could be held 3-4 times per year subject to business needs. Natural Resources Wales scientists/technical specialists and advisers should attend on a rolling basis to present papers on their area for discussion and challenge. Discussion items could be proposed by the Science Advisory Committee or Natural Resources Wales Executive, or referred by Natural Resources Wales Board, with final agendas agreed between Committee Chair and Natural Resources Wales Executive.

Annex 2: Principles of Scientific Advice to Government

http://www.bis.gov.uk/go-science/principles-of-scientific-advice-to-government

Background

The current government focus on evidence standards can be traced back to late 2010 when Defra began to investigate evidence standards and management with Natural England and the Environment Agency. Interest in this issue really ignited when Prof. Bob Watson (Defra Chief Scientific Advisor) was asked to provide assurance on the quality of evidence used to inform policy decisions. At the same time the Joint Nature Conservation Committee (JNCC) and Natural England (NE) received a series of questions around quality assurance standards and procedures, and the policies and guidelines to which they adhered. It was quickly realised that these questions were related to a challenge to the evidence being presented to justify restriction to fishing in the proposed Lyme Bay Special Area of Conservation (SAC).

In response Prof. Watson commissioned an independent review of the evidence used to underpin the marine SAC designations in England. This review concluded that the evidence presented was sufficient to support designation but there were issues raised about aspects of the process used (Bryce 2011). In December 2011 Defra released a response to the review and made a series of recommendations. In particular, the agencies were directed to adopt the Government Chief Scientist Advisers (GCSA) guidelines and the Joint Code of Practice for Research (JCoPR), to adopt a proactive but risk based approach to evidence quality assurance, to improve project management and to build in independent, expert review to the process.

This outcome was expected because by summer 2011 Defra had established a network evidence group and its membership was extended to the devolved administrations in recognition of the UK-wide implications of many evidence decisions. This group was already discussing many of the issues which subsequently featured in the Defra response and Natural Resources Wales is now represented on this group by the Head of Evidence (alongside Chris Lea, Welsh Government).

The Principles of Scientific Advice set out the rules of engagement between Government and those who provide independent scientific and engineering advice. They provide a foundation on which independent scientific advisers and government departments should base their operations and interactions.

The Principles apply to Ministers and Government departments, all members of Scientific Advisory Committees and Councils (the membership of which often includes statisticians, social researchers and lay members) and other independent scientific and engineering advice to Government. They do not apply to employed advisers, departmental Chief Scientific Advisers or other civil servants who provide scientific or analytical advice, as other codes of professional conduct apply.

Clear roles and responsibilities

- Government should respect and value the academic freedom, professional status and expertise of its independent scientific advisers.
- Scientific advisers should respect the democratic mandate of the Government to take decisions based on a wide range of factors and recognise that science is only part of the evidence that Government must consider in developing policy.
- Government and its scientific advisers should not act to undermine mutual trust.
- Chairs of Scientific Advisory Committees and Councils have a particular responsibility to maintain open lines of communication with their sponsor department and its Ministers.

Independence

- Scientific advisers should be free from political interference with their work.
- Scientific advisers are free to publish and present their research.
- Scientific advisers are free to communicate publicly their advice to Government, subject to normal confidentiality restrictions, including when it appears to be inconsistent with Government policy.
- Scientific advisers have the right to engage with the media and public independently of the Government and should seek independent media advice on substantive pieces of work.
- Scientific advisers should make clear in what capacity they are communicating.

Transparency and openness

- Scientific advice to Government should be made publicly available unless there are over-riding reasons, such as national security or the facilitation of a crime, for not doing so.
- Any requirement for independent advisers to sign non-disclosure agreements, for example for reasons of national security, should be publicly acknowledged and regularly reviewed.
- The timing of the publication of independent scientific advice is a matter for the advisory body but should be discussed with the Government beforehand.
- Government should not prejudge the advice of independent advisers, nor should it criticise advice or reject it before its publication.
- The timing of the Government's response to scientific advice should demonstrably allow for proper consideration of that advice.
- Government should publicly explain the reasons for policy decisions, particularly when the decision is not consistent with scientific advice and in doing so, should accurately represent the evidence.
- If Government is minded not to accept the advice of a Scientific Advisory Committee or Council the relevant minister should normally meet with the Chair to discuss the issue before a final decision is made, particularly on matters of significant public interest.

Applying the Principles

Scientific Advisory Committees, Councils and government departments should consider the extent to which the Principles in this document are reflected in their operation and to make changes as necessary. Issues relating to the function and working of scientific advisory bodies that are not reflected in these high-level Principles are discussed in more detailed guidance such as the Code of practice for Scientific Advisory Committees or the Guidelines on scientific analysis in policy-making.

Government departments and their independent scientific advisers should raise issues of concern over the application of the Principles, or other guidance, with the relevant departmental Chief Scientific Adviser (CSA). If the matter of concern cannot be effectively resolved or is especially serious CSAs should approach the Government Chief Scientific Adviser (GCSA) and Ministers should approach the GCSA and the Minister for Science. The matter will be examined against a clear set of criteria, which include a breach of the Principles or CoPSAC.

Annex 3: Joint Code Of Practice For Research (Code)
http://www.bbsrc.ac.uk/web/FILES/Policies/joint_code_of_practice_for_research.pdf
http://www.defra.gov.uk/publications/files/pb13725-research-code-practice.pdf

Background (from hyperlink above)
This Code was initially developed by a working group of representatives from the:
• Biotechnology and Biological Sciences Research Council (BBSRC)
• Department for Environment, Food and Rural Affairs (Defra)
• Food Standards Agency (FSA), and
• Natural Environment Research Council (NERC).
It was subsequently endorsed by the:
• Northern Ireland Department of Agriculture and Rural Development
• Scottish Executive Environment and Rural Affairs Department (now RERAD, Rural and Environment Research and Analysis Directorate), and
• Welsh Government (The UK Devolved Administrations).
The Code has also been endorsed by:
• Animal Health and Veterinary Laboratories Agency (AHVLA)
• Food and Environment Research Agency (Fera)
• Forestry Commission (FC)
• Marine Management Organisation (MMO)
• Natural England (NE), and
• Veterinary Medicines Directorate (VMD).

The Code was launched in May 2003, and took effect from 1 June 2004. Defra and the FSA initiated a joint audit programme in 2006 to determine whether research projects, funded after 1 June 2004, were being carried out in accordance with the Code. The United Kingdom Accreditation Service (UKAS), was commissioned to audit a sample of Defra / FSA projects against the provisions of the Code. The generic findings from the two year UKAS audit programme were disseminated amongst QA managers and other interested parties, at a joint Defra / FSA workshop, held in Reading in March 2009. The Code has subsequently been revised by Defra and the FSA in light of both the audit findings and the workshop outputs, with input from BBSRC, NERC and the UK Devolved Administrations. The Code applies to all research funded by Defra, the FSA, NE, VMD, AHVLA, MMO, Fera, FC, the UK Devolved Administrations, and to research funded by BBSRC and NERC in their own Institutes. It is intended to apply to all types of research, but the overriding principle is fitness of purpose and therefore the individual provisions should be read with that in mind.

Requirements
A summary of the specific requirements of the Code are given below. Full details can be found by following the hyperlinks above.

1. Responsibilities - contractor is responsible for the overall quality of research conducted within it, including compliance with in-house research and management policies.

2. Competence - All project personnel must be competent to perform the technical, scientific, and support tasks required of them. Contractors should be able to provide documented evidence that personnel are capable of completing the work required competently and safely.
3. Project Planning - An appropriate level of risk assessment should be conducted to demonstrate awareness of the key factors that will influence the success of the project and the ability to meet its objectives.
4. Quality Control - contractor should have planned processes in place to assure the quality of the research undertaken by its scientists. Authorisation of outputs shall be as agreed by the Funding Body, and subject to senior approval in the organisation, where appropriate.
5. Health and Safety - All research must fully comply with the relevant Health and Safety regulatory requirements.
6. Handling of samples and materials - All samples and other experimental materials should be labelled clearly, accurately, uniquely, and durably, and be retained for an agreed period.
7. Facilities and equipment - The working environment must be appropriate for safe operation of equipment, maintenance of sample quality and integrity, and good working practices.
8. Documentation of procedures and methods - All the procedures and methods used in a research project must be documented, as part of the contractor's file records for the project. This includes analytical and statistical procedures and the generation of a clear audit trail, including document and version controls, linking secondary processed information to primary research data.
9. Research / work records - Contractor's project records must be of sufficient quality and detail to present a complete picture of the work performed, enabling it to be repeated if necessary.
10. Field-based research - All field-based research must comply with all relevant environmental legislation, where appropriate. Laboratories have a duty to manage any discharges and emissions to the environment, such that any pollution risks are minimised.