

A COORDINATED AGENDA FOR MARINE, ENVIRONMENT AND RURAL AFFAIRS SCIENCE (CAMERAS) (2011-2016)

RSPB
Dunedin House
25 Ravelston Terrace
Edinburgh
EH4 3TP

Headline Themes

- 1. Do you agree that the two broad categories of 'Local Responses to Global Change' and 'Optimising the Potential of Scotland's Natural Assets' are helpful in providing an overlying structure to the Co-ordinated Agenda?**

Yes. The clear move from a traditional sectoral approach to the delivery of science to underpin policy (e.g. agriculture, forestry, fisheries, energy generation), towards an approach which recognises the need for a science base which helps to identify better integrated solutions to management of Scotland's environment is welcome. However, the categories are extremely high level, generic descriptions of the main scientific and policy challenges. Early work will be needed to define and prioritise the scientific agenda more clearly, ideally capturing this in some form of successor to the 2005-2010 Strategic Research for SEERAD: Environment, Biology & Agriculture 'green book'.

- 2. Are the descriptions of these set out in Section 3 (and Annex 3) comprehensive?**

No, but this is inevitable in a high-level summary document such as this, and a further reason why a successor to the 'green book' strategy would be desirable. A few specific concerns are listed below:

Local Responses to Global Change. This section should more clearly recognise the need for research to better understand how Scotland's environments are responding to climate change now and in the near future. This is critical to refine outputs from model-based forecasting work and the development of targeting tools for mitigation and adaptation work. The section covering 'globalisation, trade and other issues' should include the possible impact of changes to the CAP policy agenda that are tied to food production pressures. Forms of agricultural use dominate the land cover of Scotland as elsewhere in the UK. In the short and medium term it is likely that local responses to an increasingly food supply focused policy agenda could polarise agricultural land use in Scotland. This will have starkly contrasting environmental, social and economic consequences between areas where there is capacity for a production response in arable agriculture, and those more heavily environmentally constrained and economically marginal areas of

marginal livestock-based farming. Any evolution of policy thinking on the need for mechanisms to support High Nature Value (HNV) Farming will impact on local responses too.

Optimising the Potential of Scotland's Natural Assets. In section 1, the consultation correctly identifies the upcoming Scottish Marine Bill and implications for future management of the marine environment as a key area which will require increased support from the science base. This point is so fundamental (imagine a 'Terrestrial Bill') that we would suggest that 'Optimising management of Scotland's marine environment' (or similar) merits specific consideration. If given the appropriate scientific resources, the Marine Bill will optimise the potential of one of Scotland's greatest assets - its coastal and marine environment - and increase its resilience to harmful impacts of climate change. The Marine Bill will also deliver the tools for Scotland to meet the requirements of the EU's Marine Strategy Framework Directive, including Scottish waters meeting Good Environmental Status by 2020. This new policy framework will require significant support from Scotland's scientific bodies, for example to establish criteria for new forms of marine protected areas, develop Marine Ecosystem Objectives (MEOs), identify Good Environmental Status, and assess the impacts of new marine technologies. In developing MEOs, relevant bodies must coordinate this with the development of other marine objectives and indicators for Scotland, including those for individual sectors (e.g. high level biological and environmental objectives for inshore fishery groups, and environmental indicators for aquaculture under the renewed strategic framework for Scottish Aquaculture).

Assigning economic and societal value to natural assets is key for future policy development. It is vital that Scotland inputs in this area in the next 5-10 years, given initiatives elsewhere in the UK and in Europe. Any valuations must make the overt link to the land management that conserves/enhances/damages these natural assets, and therefore assists in developing a new way of incentivising positive, and penalising negative land use practices in direct relation to their impact on public benefits.

3. Do these cover the major policy challenges where science can contribute as you see them?

Yes, at the highest level, these themes give comprehensive coverage. However, the more detailed descriptions in section 3 tend to be heavily focused on new and emerging scientific challenges in support of policy rather than those that already exist and to which commitment should not waver. For example, the current (2005-2010) Strategy for Environment, Biology and Agriculture specifies three cross-cutting themes to which research programmes must contribute. These are 'responding to climate change', 'protecting biodiversity' and 'environmental, social and economic sustainability of Rural Scotland'. The first and third of these are very well reflected in the CAMERAS themes, and indeed the third of these is the core premise on which the consultation document is developed. However, continuity in commitment to 'Protecting Biodiversity' is not as clear as it should be.

Biodiversity has huge and diverse value in underpinning the delivery of a wide range of ecosystem goods and services from healthy soils and seas, to tourism and quality of life, and from the perspective of nature conservation, Scotland has legal commitments and targets at Scottish, UK and European levels. Erosion of biodiversity continues both globally and locally (instances where the 2010 target to halt biodiversity loss has been achieved will be the exception rather than the rule), and CAMERAS should explicitly renew the commitment to science that will underpin the protection of biodiversity, and support the delivery of the Scottish Biodiversity Strategy. To say (p13 of the consultation document) that CAMERAS will ensure that 'our natural assets are not irreversibly compromised' is simply not enough. Many compromises have already been made, much biodiversity has already been lost, and future management of Scotland's terrestrial and marine environments must reverse these wherever possible if the goal of sustainable economic growth' is to be achieved.

4. Are they likely to remain broadly relevant over the longer time horizon (well beyond the 2016 focus of this Coordinated Agenda)?

Yes

5. Do you agree with the description of support for the National Capability Theme set out in Section 3 (and [Annex 3](#))?

Yes.

6. What facilities, resources and data do you think are important for Scotland to maintain?

Scotland must maintain and indeed enhance its ability to monitor biodiversity trends and drivers of environmental change. The recent development of a set of biodiversity indicators for Scotland (two of which have since been adopted as National Performance Framework indicators) was limited by the availability and robustness of biodiversity data. At a minimum the resources necessary to support the existing set of biodiversity indicators should be maintained and strengthened, and consideration given to broadening the indicator set according to the recommendations of the Scottish Biodiversity Forum.

Agriculture will continue to dominate the rural land use of Scotland for the foreseeable future and in that context, high quality data on spatial and temporal trends in agricultural land use and practices will continue to be of critical value. Currently, the acquisition of many of these data is driven by the needs of the sector and/or for Government accounting purposes rather than being driven by the scientific need for, and value in, the data sets. In future, it would be helpful if the scientific community were more actively engaged in the design and long-term design of data acquisition in areas such as agriculture and forestry land use and agrochemical inputs.

In the same context, an 'observatory' along the lines of Defra's Agriculture Change and Environment (ACE) Observatory, which speedily collates data on

the environmental impacts of changing land uses resulting from CAP policy changes would be a hugely valuable resource to replicate. There are currently many changes in rural Scotland driven by CAP changes (and other policy and market forces), which are being monitored only on an ad hoc basis, if at all. The danger is that policy mechanisms cannot then be deployed to address any serious negative impacts (for example from changes in livestock numbers in areas where grazing is essential for environmental maintenance) until it is too late.

7. Are there other resources that Scotland needs to acquire to support future policy development?

Effective monitoring of rural development initiatives (particularly the SRDP) and the environmental impacts of other CAP mechanisms (such as the impact of GAEC conditions attached to the Single Farm Payment). This should go beyond the baseline minimum required by the European Commission, to provide a robust set of monitoring and evaluation data on biodiversity and other outcomes. This would allow Scotland's agri-environment programme to evolve and be refined in response to an improving evidence base, thus feeding effectively into future policy debates about, for example, the respective roles of broad and shallow versus narrow and deep schemes or the impact of identifying regional priorities.

Policy Issues

8. Have we correctly identified the key policy issues and the associated scientific opportunities in Section 3?

Please see answers to questions 2 and 3.

9. Are there additional issues that should be included?

Please see answers to questions 2 and 3.

10. What do you think will be the most important influences on Scotland's future in the Marine, Environment, Rural Affairs and related areas?

We list some examples below. This is not intended to be exhaustive.

Increasing pressures on the environment to produce more and novel food, renewable energy, forestry and other human resources.

Climate change- a range of influences related to growing climate change impacts (including extreme events as well as gradual change), and effects of our adaptation and mitigation responses.

Increasing demographic imbalance as rural areas lose younger people, and

skills are lost from some sectors

Increasing development pressure on peri-urban environments as populations rise

Economic, demographic and technological impacts of increasing costs of fossil fuels.

11. Why do you think these are important?

12. Are there other scientific opportunities which should be highlighted?

The Science

13. What existing areas of Scottish based scientific expertise should be maintained to contribute evidence to key policy issues?

Scotland has a strong tradition of research in support of the 'land use industries', as represented by research institutes, including the Macaulay, SCRI and SAC. It is critical that experience, expertise, innovation and resources of these institutes are maintained, but that the current direction of travel from scientific support for 'single-purpose' environmental sectors (e.g. agriculture, forestry, fisheries) to scientific support for integrated management of Scotland's environment for a wide range of economic, environmental and social goods and services, is maintained and enhanced. Many of these institutes and their partners in the University sector already support the mix of natural, economic and social scientists needed to deliver highly interdisciplinary research in support of sustainable environmental management objectives, and this capacity will be especially valuable. The recently launched Aberdeen Centre for Environmental Sustainability, a partnership of Aberdeen University and the Macaulay Institute, is innovative in this respect.

Following the answer to question 3, above, scientific expertise and resources in support of the need for biodiversity conservation is currently rather thinly scattered across research institutes, NDPBs, a few universities and parts of the NGO sector. This capacity should be strengthened through a renewed commitment of scientific resource in pursuit of the objectives of Scotland's Biodiversity Strategy and the UK Biodiversity Action Plan.

14. How clear is the relationship between the scientific areas and the key policy issues?

The meaning behind this question is slightly unclear. However, we would emphasise that the CAMERAS consultation document is written at a very broad 'high strategy' level. Clarity in relating proposed areas of scientific activity to key areas of policy need more specifically would come from development of the current consultation into a more detailed research strategy as an evolution of the 2005-2010 'Environment, Biology & Agriculture' strategy.

15. In which areas of science can we continue to make use of expertise supported elsewhere e.g. at the UK, EU and international levels?

Scotland should continue to make use of a scientific expertise provided at UK, European or international level wherever such expertise is available and relevant to fulfilling Scotland's scientific needs.

16. In the time frame for CAMERAS (2011-2016) what new emerging areas of science are likely to mature and become available for more general use or application?

17. Do we have the expertise available to be able to use these new opportunities?

18. In which areas does Scotland need to be self reliant?

Delivery

19. Knowledge Exchange is essential for scientific activity to achieve impact. Do you agree that KE should be an explicit and integral aspect of the delivery of this Coordinated Agenda

Yes. The current 2005-2010 Environment, Biology & Agriculture research strategy has provided a much-needed stimulus to recognising KE as a critical element in ensuring that the best science is best used in informing policy. KE must remain an integral and explicit element of CAMERAS.

20. How can we continue to improve the integration of evidence from a diverse range of sources into forms that are accessible to end users?

It is not clear that this is a very incisive question. Making diverse material accessible (both physically and intellectually) to end users is a relatively easy matter. Much more important is the challenge of understanding what communication processes and cultures need to be developed to ensure that science is used effectively in informing subsequent action (i.e. questions 22-24).

21. How can we reconcile the requirement for science to be responsive and flexible to short term demands while at the same time ensuring that longer term strategic research continues to progress our knowledge and understanding?

This is perhaps more a matter of coordination than reconciliation. Currently, the ERFF (for example) encompasses a wide range of research funders from those who fund primarily at the blue skies end of the spectrum (e.g. research councils), to those who fund research directed towards the medium-term, strategic underpinning development of policy (e.g. RERAD funding of research institutes in Scotland), and support for immediate, problem-solving, or 'near-market' science (e.g. RERAD contract research fund, NDPBs, industry). Effective co-ordination of these research agendas at Scottish, UK and EU levels is critical, as is the development of a base of scientific expertise (both that the individual and institutional level) which is able and willing to draw on resources across this spectrum, and produce outputs well tailored to the needs of end users.

22. How can we ensure that the 2 way flow of knowledge from science to policy and from policy to the academic community is optimised?

A simple, but probably effective approach would be to seek out examples of best practice (whether arrived at by design or accident) where there is efficient flow of understanding (not just knowledge) between the science 'producer' and science 'consumer' communities, so that there is clear evidence of effective use of science to inform action. Don't restrict this analysis to 'academia' and 'policy' communities. Look at both the research community (e.g. research institutes, NGOs) and end user communities (e.g. land managers) more broadly for sources of inspiration. Equally, be brave and seek out examples at the other end of the spectrum where flow of understanding is poor or non-existent. What aspects of either structure or culture characterise these examples of best and worst practice? Use the answers to these questions to move forward. One wouldn't have to go far to find and learn from these contrasts. For example, many organisations, including some NGOs and many of the agencies comprising CAMERAS combine scientists and end users of science under one roof.

Of course, there are more formal arrangements which can only help such as short-term placements or longer-term secondments of scientists into the end-user community or vice versa. The key in most cases will be that moving from flow of facts to flow of understanding will depend on straightforward face-to-face communication and development of productive personal working relationships.

23. Are there alternative structures/systems or new approaches/organisations that could enhance these flows?

A serious barrier to efficient communication between the producers and users of science derives from the simplistic use in academia of publication metrics as the main (often sole) indicators of scientific performance. Such metrics, in the main, have little bearing on whether a given scientific study is of value to its potential end-users, and whether it has impact beyond the immediate scientific peer group, but discourage scientists and their managers from valuing wider aspects of KE and end-user communication. A long-term solution to this problem lies outside the remit of CAMERAS, and would be challenging to find, but the development of mechanisms of recognition and reward for scientists displaying excellence in the communication of their science, and commitment to effective knowledge exchange would be hugely beneficial.

24. Are there science delivery models which could provide examples of good practice for Scotland to follow?

The answer to this question is largely covered by the answer to Q22, above. Whether there are formally recognised 'models' of science delivery, we are unsure, but certainly we consider that within the environmental research community in its broadest sense (i.e looking across academia, research institutes, agencies and NGOs) there are examples where mutually reinforcing communication between science and end-user communities has led to effective use of the evidence base in support of decision-making. One simple example is that the design of many agri-environment options for biodiversity conservation in schemes in Scotland and elsewhere in the UK has an excellent evidence base, in which linked phases of research, implementation and monitoring have led to progressive improvement in management. Cases like this could usefully be examined to determine whether there are common elements that characterise effective models of science delivery.

25. General Comments

The reference to "increasing sustainable economic growth" in the introduction to the consultation document, immediately introduces ambiguity given the multiple possible interpretations. Ultimately a science base which assists in reaching rational, evidence-based and societally acceptable resolutions of competing demands on environmental resources, but is also able to identify where 'win-win' outcomes may be found will be essential, and the overall vision for CAMERAS is timely and appropriate. Tempering this comment, however, we do find that 'economic growth' arguments are too dominant in the introductory text to CAMERAS, and the references to 'balances' between economic, social and environmental needs seem inappropriate. Wherever possible, these needs should be integrated and the principles of sustainable development should guide environmental management. As the EU Director General for Maritime Affairs and Fisheries put it recently in relation to the

marine environment, “ecological sustainability must have top priority because it is the basis for social and economic benefits.”

On p3 of the introductory text (Section 1), it is encouraging to see both the Climate Change and Marine Bills listed as examples of developing legislation and policy which CAMERAS science will need to inform. As the document recognises, existing strategies and policies also remain important in this context, and the Scottish Biodiversity Strategy should be listed alongside others on p4.

On p6, it is surprising not to see the Forestry Commission and its research agency, Forest Research, listed as falling under the CAMERAS umbrella, given the importance of forestry as a rural land use and industry in Scotland. Why is this?