

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

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Consultation Questions

<p><i>Question 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?</i></p>	<p>Yes, Having a global focus as well as a national focus for research is increasingly important and defining the two categories helps to clarify objectives.</p>
<p><i>Question 2: Are the descriptions of these set out in Section 3 (and Annex 3) comprehensive?</i></p>	<p>No, Not comprehensive but perfectly adequate "headlines". A comprehensive description would, for example, attempt to identify Scotland's natural assets beyond the broad headings of people, land and seas, and the list of objectives would include, for example, industrial uses of crops (eg renewable fibre, polymers and energy).</p>
<p><i>Question 3: Do these cover the major policy challenges where science can contribute as you see them?</i></p>	<p>Yes,</p>
<p><i>Question 4: Are they likely to remain broadly relevant over the longer time horizon (well beyond the 2016 focus of this Coordinated Agenda)?</i></p>	<p>Yes, The examples of global events (climate change, fluctuations in demand and demographic shifts) are going to continue to have an impact well beyond the next decade and the local assets are largely fixed. What is important is to ensure that the research base established has flexibility built in, to be able to respond to specific aspects of these policy challenges as required.</p>
<p><i>Question 5: Do you agree with the</i></p>	<p>Yes,</p>

<p><i>description of support for the National Capability Theme set out in Section 3 (and Annex 3)?</i></p>	
<p><i>Question 6: What facilities, resources and data do you think are important for Scotland to maintain?</i></p>	<p>In Crop Science: The SCRI is an internationally recognised research institute with the capability to address for global and national issues and to work with other leading institutes for the benefit of Scotland. SAC has a strong reputation throughout the UK for applied research and has, for example, the resources to deal with many of the issues relating to natural assets. SCRI has built up considerable resources relating to the major Scottish crops. For barley, developments in molecular biology linked to the strong more traditional phenotyping programme have lead to considerable valuable resources being developed to support the industry and this should continue. In potatoes, the germplasm collection is extremely valuable and work on conserving and categorising it needs to continue to be resourced.</p>
<p><i>Question 7: Are there other resources that Scotland needs to acquire to support future policy development?</i></p>	<p>No, In Crop Science current resources are probably adequate providing that they are properly financed.</p>
<p><i>Question 8: Have we correctly identified the key policy issues and the associated scientific opportunities in Section 3?</i></p>	<p>Yes,</p>
<p><i>Question 9: Are there additional issues that should be included?</i></p>	<p>No,</p>
<p><i>Question 10: What do you think will be the most important influences on Scotland's future in the Marine, Environment, Rural Affairs and related areas?</i></p>	<p>Climate change might well be the most important issue in all areas and adaptation, as well as mitigation, strategies will become extremely important. EU legislation</p>
<p><i>Question 11: Why do you think these are important?</i></p>	<p>From a crop perspective, climate change will influence the crops grown and the biotic and abiotic factors affecting them. This could have an</p>

	<p>impact on a number of important Scottish industries (eg seed potato industry). EU legislation will impact on what crops can be grown and where, and the products that can be used to protect them (eg Water Framework Directive, revision of 91/414EEC)</p>
<p>Question 12: Are there other scientific opportunities which should be highlighted?</p>	<p>Yes, A return to crop research into genetic modification should be seriously considered. The technology could have major benefits for Scottish agriculture, food and natural products in the future.</p>
<p>Question 13: What existing areas of Scottish based scientific expertise should be maintained to contribute evidence to key policy issues?</p>	<p>Genetic resources and databases for the major crops (particularly barley and potatoes). Currently Scotland has strengths in these areas and this needs to be maintained. - to address climate change and other environmental issues and support the livelihoods of farmers and the food/drink industries Applied crop science to address factors affecting crop yield and quality and to determine appropriate inputs such as nitrogen and crop protection chemicals. The contributes to the same policy issues.</p>
<p>Question 14: How clear is the relationship between the scientific areas and the key policy issues?</p>	<p>The important thing is to ensure that the development of policy is evidence based and, where appropriate, this is robust scientific evidence.</p>
<p>Question 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?</p>	<p>For crop science: In the genetics/genomics arena, collaborative research with other centres of excellence is essential for rapid progress. Although Scotland is a centre of excellence for barley work, much can be gained from links with other cereal scientists. However, many of the technologies are common across plant and even animal science so considerable benefits can be gained from sharing expertise. Many HGCA projects involve crop scientists from a number</p>

	of centres and this helps to develop cross centre collaboration.
Question 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?	Plant breeders are beginning to use molecular biology within their programmes, particularly marker-assisted selection. Within the next 7 years we can expect to see rapid progress in this area. Precision farming is already being used to some extent by many farmers and as the benefits become more widely realised and the equipment becomes cheaper and simpler to use there will be more rapid take-up. As well as cost saving, this will be beneficial to the environment as PF saves fuel and inputs.
Question 17: Do we have the expertise available to be able to use these new opportunities?	Yes, The issue for plant breeding is that, for Scotland's most important crop barley, the breeders are in England or elsewhere in Europe. Developing strong links is therefore essential.
Question 18: In which areas does Scotland need to be self reliant?	
Question 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, Absolutely. I think this is a strength of the current programme and needs to continue to develop.
Question 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?	KE experts need to be employed for that purpose - most research scientists are not experts in this field and are often only interested in their specific field of research. The key is to appoint people to draw together research findings from a variety of sources and present it in an accessible way to end users. To often KE/KT has been seen as an after thought rather than being built into a programme.
Question 21: How can we reconcile the requirement for science to be responsive and flexible to short	Recognising the need for both is a first step, and ensuring that researchers working on strategic and

<p><i>term demands while at the same time ensuring that longer term strategic research continues to progress our knowledge and understanding?</i></p>	<p>applied research are equally acknowledged and rewarded for delivering against milestones, whether these be end products or increased knowledge.</p>
<p><i>Question 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?</i></p>	
<p><i>Question 23: Are there alternative structures/systems or new approaches/organisations that could enhance these flows?</i></p>	
<p><i>Question 24: Are there science delivery models which could provide examples of good practice for Scotland to follow?</i></p>	<p>I am not aware of any in particular but elsewhere I might well quote the Scottish model as having significant strengths, with the project-based approach and strong links between strategic and applied research and, in the case of agricultural research, through to extension work. It is important that this is built on, and not lost, in any new structure.</p>
<p><i>Question 25: We would also welcome any other general comments you may have on any of the issues raised in this document.</i></p>	