Report of the Environment, Planning and Countryside Committee's consideration of evidence taken on agri-environment research

Introduction

1. At its meeting on 11 May, the Committee resolved to include the sustainability of agri-environment research in Wales as a policy development priority in its strategic forward work programme for 2006-07. The Committee took evidence on agri-environment research at its meeting on 15 June.

2. The organisations represented on 15 June were:

   - The Welsh Assembly Government (WAG)
   - The Department for Environment, Food and Rural Affairs (Defra)
   - The Biotechnology and Biological Sciences Research Council (BBSRC)
   - The Institute for Grassland and Environmental Research (IGER)
   - Coleg Llysfasi College

   The organisations also submitted written evidence in advance of the meeting. The evidence is appended to this report (Annex 1), as is the transcript of the evidence taken in Committee (Annex 2).

3. The report that follows summarises the main issues raised.

Funding Providers and Strategic Priorities

Defra

4. The budget for agri-environment research in Wales is held by Defra on an England and Wales basis. Through Defra's science and innovation strategy, the department spends more than £325 million a year on science. It told us that its two most important partners in Wales were the Centre for Ecology and Hydrology in the University of Wales, Bangor and IGER. It expects IGER to provide it with a strategic resource, 'to understand the environmental footprint of agriculture, especially from livestock and grassland'.

5. Defra has recently rebalanced science programmes to align with strategic priorities. Mitigating the effects of climate change and energy use and efficiency are the new, overarching priorities. It is therefore moving away from sectoral programmes in farming and food to more cross-cutting research schemes. Its decisions have been informed by the sustainable farming and food research priorities group, which is chaired by Professor Chris Pollock, the Director of IGER. The new programmes for sustainable farming and food are: agriculture and climate change; sustainable water management; sustainable farming systems; and food. **In light of Defra's changed strategic priorities, and given the worldwide importance of tackling climate change,**

we recommend that the Welsh Assembly Government plans and makes appropriate investment in agri-environment research and schemes whose aims are to mitigate the effects of climate change.

6. Defra is moving to the new programmes as the old programmes end, however, we were told that, during this period of transition, no funding for the old programmes was being lost or withdrawn. Defra recognised that it was a challenging time for research providers.

7. While we agree with the changed priorities, given their disruptive impact on research institutes, **we recommend that the Welsh Assembly Government discusses with Defra how, through formal planning and long lead-in times, disruption to research institutes may be minimised when strategic priorities change, so that their sustainability is not undermined.**

BBSRC

8. The BBSRC has a budget of £380 million, of which about one third of research funding goes to research institutes and two thirds to universities.

9. Last year the council published a strategy for science across the research institutes, which included three principle strategies, one of which was sustainable agriculture and land use. These strategies will help determine funding allocations for the next four years. Overall, the council wishes to invest more in animal health and welfare, while maintaining stability in sustainable agriculture and land use. The BBSRC explained that research institutes would see little difference in funding levels, but will be able to access additional funding for projects involving greater collaboration.

10. Given the contraction in agriculture research in universities and the increasing financial losses of research in agricultural facilities, the BBSRC wishes--with the funding councils--to sponsor an audit of UK land-based research facilities. Such an audit might, we were told, highlight opportunities for rationalisation and collaboration. The overarching aim is to encourage greater integration between cognate research organisations.

Stability of funding

11. In line with its changed strategic priorities (see para. 5), Defra has decreased its budget for farming and food and increased the allocation of the environment directorate general. We were told, however, that the strategic priority of the sustainable farming of food, including animal health and welfare, still consumes more than half of Defra's research and development budget.

12. IGER is a major contractor for Defra, yet Defra's funding for IGER has decreased in recent years and is projected to decrease further. Defra defended this by saying that the decreases were in line with current ministerial priorities.

13. The BBSRC told us that it recognised the longer-term perspective and high infrastructure costs of the work of research institutes. It therefore aims to provide long-term sustainability for institutions such as IGER. Whereas Defra has to focus on current science priorities in deciding its funding allocations, the BBSRC is seeking a sharing of responsibility for creating a sustainable future for institutions. We therefore note again the tension between the need to secure long-term sustainability and the imperative to respond to immediate political priorities.

14. The BBSRC and the Welsh Assembly Government both referred in oral evidence to the Research Institute and Public Sector Research Establishments Sustainability Study, (RIPSS) of 2004, which looked at the better strategic management of the whole of the university base and its assets and at improving systems for costing and pricing within higher education. We were told that the report's key recommendation, namely joint action by funding stakeholders to ensure fitness for purpose and sustainability, would be vital to IGER's future, given the institute's plurality of funding, and 'its heavy independence on sources other than the sponsoring body for the majority of its income'.

15. We were encouraged to learn that the BBSRC and Defra have a close working relationship. However, we were concerned to read in IGER's written evidence that Defra has not yet committed to one of RIPPS key recommendations, namely that co-sponsors of institutions, especially those investing more than 15 per cent of funding, agree a joint funding strategy. We believe that this would help to secure the future sustainability of institutions. **We therefore recommend that the Welsh Assembly Government facilitates joint discussions as soon as possible between the BBSRC and Defra with a view to developing a joint funding strategy for IGER in line with RIPPS key recommendation.**

Governance

16. A recent review by the Office of Science and Innovation confirmed that there was some shortfall in the application of governance best practice at public sector research establishments. In its written evidence the BBSRC informed us that it believed that there was scope for greater clarity in the governance arrangements of its sponsored institutions. It has therefore commissioned an independent review by Sir Brian Follett to look afresh at the issue of governance in research institutions. The review panel is expected to report in October 2006.

17. The review is currently subject to consultation. The option for future governance arrangements range from suggesting that some organisations may become closer to research councils and possibly be wholly governed by them, while others may become embedded in higher education institutions.

18. At the time of our evidence session, the Welsh Assembly Government was preparing Wales' response to the Follett review. **We request that the Welsh Assembly Government make known its response to the Follett review to key stakeholders and to the Committee as soon as possible.**

The Future of IGER

19. As stated above, Defra funding for IGER is declining in line with Defra's strategic priorities. In light of this and given the need to maintain the institute's sustainability, the BBSRC has authorised a redundancy programme involving 40 jobs.

20. We were encouraged to hear Professor Pollock say that he was confident that IGER would, in time, recover some of the lost income by capturing evidence and innovation money. However, the short-term challenge would be considerable.

21. Professor Pollock emphasised the policy, scientific and management reasons why IGER must respond to the changes in land-based research and development if it is to have a sustainable future. He explained that infrastructure costs were increasing because it has become difficult to offset them against the sale of produce.

22. We heard from Professor Pollock how IGER intends to respond to the current situation. He outlined three main areas: increasing the institutes' portfolio of cross-cutting activities; building on the generic elements of IGER science by establishing cross-institute and cross-higher-education programmes; and broadening IGER's range of industrial partnerships.

23. IGER recognises that it must move towards altered governance relationships, of which there are two models under active consideration: the first with a similar sponsored institution, namely, Rothamsted Research; and the second with higher education institutions in Wales. We were reassured to read in IGER's written evidence, that in correspondence with the institution during 2006, the BBSRC has encouraged IGER to maintain flexibility so that it can make the most appropriate choice.

Single funding stream

24. Given the BBSRC's stated aim of encouraging greater integration between cognate research organisations, we were not surprised to hear that the council had floated the option of a single funding stream between IGER and Rothamsted Research. The directors and governing bodies of the respective institutions are considering this proposal, which could lead to a merger or rationalisation of facilities from 2008. In his written evidence Professor Pollock acknowledged that increased alignment would be a logical continuation of some formal linkages already in place. The Committee, however, voiced some concern that this development might mean a loss of independence for IGER.

Collaboration

25. We heard that the Higher Education Funding Council Wales has invested large sums into reconfiguring research on the Bangor-Aberystwyth axis, part of which covers environmental and land-based research. IGER is engaged in active discussions with these institutions and is exploring the possibilities and repercussions of creating a new structure for research. Professor Pollock, who has already had 'without prejudice' discussions with colleagues in relevant higher education institutes, urged the Committee to consider that such a development, 'would be contingent upon getting strong indications of support from a range of different bodies that this was the right thing to do to protect agri-environmental research in Wales and the UK.'

26. We understand that the Welsh Assembly Government is interested in this option and we were told that it is working to look for wider opportunities to strengthen the consortia approach to undertaking research in Wales. **We urge the Welsh Assembly Government to support IGER's discussions with higher education institutions and through the Higher Education Funding Council Wales and other relevant bodies to provide sufficient funding to ensure that future collaboration is both a viable and attractive option for all concerned.**

Application of research and development

27. During our evidence session, a warning note was sounded that farming may be facing a skills retention crisis. Few farmers are graduating from agricultural departments, so Professor Pollock and Dr Cunningham voiced their concerns that not enough was being done to ensure that farmers are able to interpret cutting-edge research in applied technology transfer to help their businesses be more effective and efficient.

28. In light of these concerns, Dr Cunningham called for an all-Wales strategy, 'to service the initial vocational training, the continuing

professional development, and the technology transfer for the agricultural industry'. The Committee shares the concerns of Dr Cunningham and others and believes that everything possible should be done to ensure the adequate and accessible provision of appropriate training and professional development opportunities in order to safeguard the industry's future.

29. We are aware that the Higher Education Funding Council in England is currently conducting a review of land-based training. **In light of this review, we recommend that the Welsh Assembly Government asks the Higher Education Funding Council Wales to review the position in Wales and make recommendations on the future of land-based training and development within 12 months.**

30. Professor Pollock sited Bronwydd Mawr, a Farming Connect demonstration project, as an exemplar of bringing research into direct contact with the industry. Dr Cunningham suggested that such centres should be within easy reach of all farmers to assist their professional development. **We recommend that the Welsh Assembly Government, as part of its review of Farming Connect, establishes a network of demonstration projects within 80km of all Welsh farmers.**

Annex 1

Environment, Planning and Countryside

EPC(2) 09-06(p7)

Date: 15 June 2006

Venue: Committee room 2, Senedd

Title: The Welsh Assembly Government's (WAG) Links to the Department of Environment, Food and Rural Affairs (Defra) Research Programmes

Defra has a large departmental research programme that supports policy formation. Research plays a major role in providing policy-makers with knowledge and tools to anticipate new risks and opportunities and to enhance Defra/WAG capabilities for anticipation of such risks. This budget is held by Defra on an England and Wales basis.
Through Defra's Science & Innovation Strategy 2003-06, the department spends more than £325 million a year on science (including research, monitoring, surveillance and evaluation) underpinning a broad range of policies including environmental protection, farming and food, animal and plant health and sustainable energy.

For WAG this represents an opportunity work in partnership with Defra in targeting research which will have an impact on Wales and support WAG's policy priorities in relation to the environment, sustainable food and farming and vibrant rural communities.

WAG links with Defra's research programmes have strengthened with involvement in three strategic key areas that set the research agenda:

- The Science Advisory Council (SAC)
- The Sustainable Farming and Food Research Priorities Group (RPG)
- The Evidence and Innovation Strategy (E&IS)

Work at this strategic level has meant that WAG plays a full part in a number of specific projects and initiatives (see Annex 1).

WAG also provides input to the following Defra and cross-departmental programmes:

- Horizon Scanning
- Farming and Food LINK Programmes
- The Research Council Institute and PSRE(Public Sector Research Establishments) Sustainability Study (RIPSS)

Background to the Strategic Groups

- **The Science Advisory Council (SAC)**

Established in 2004, the Science Advisory Council (SAC) provides Defra with expert and independent advice on science policy and strategy. SAC helps guide Defra/WAG scientific priorities and work across the complete range of the Department's policy activities, including horizon-scanning and long-range planning as well as dealing with immediate risks and opportunities. SAC also operate a number of sub groups on which WAG are represented. WAG feeds into SAC key Welsh issues and priorities and reports outcomes of SAC work to EPC divisions. As part of the SAC engagement WAG has provided input to the OSI (Office of Science and Innovation) review of Science in DEFRA by Sir David King which is ongoing.

- **Sustainable Farming and Food Research Priorities Group (RPG)**

The Sustainable Farming and Food Research Priorities Group (RPG) has been set up as an independent and open source of advice on research priorities on sustainable farming and food. The primary function of the RPG is to identify the research agenda for Defra/WAG so that it underpins the Sustainable Farming and Food Strategy. It's aims are to achieve better integration in the research community from the Research Council base through to Levy bodies and Industry. At the same time it is to develop better cross-sector working and joint initiatives to create better cohesion in the farming and food research area. Wales hosted the sixth in a series of workshops in 2004, entitled 'Delivering landscape scale benefits from farms whilst improving economic sustainability of UK agriculture'. The workshop identify the strategic research needed to provide the evidence base for management systems that deliver positive landscape scale benefits which improve the sustainability of farming and food industries from a Welsh perspective. Chris Pollock of IGER chairs this group and within Wales we are now working to take many of these priorities forward as part of the Evidence and Innovation Strategy.

- **The Evidence and Innovation Strategy**

This strategy, produced by the Science Strategy Team, provides a current assessment of Defra/WAG evidence and innovation needs. Wales has provided input to the development of the strategy and to ensure our needs are considered. WAG has a place on the project board for the implementation phase of the strategy. This strategy aims to improve Defra/WAG understanding of how evidence and innovation can best support delivery of strategic outcomes and how programmes will need to evolve in the future. It will also help refocus the use of knowledge (including science, social science, economics, statistics and engineering) in achieving Defra/WAG objectives.

Part of this strategy was the work completed in the Evidence and Innovation Project to scope the likely nature of the scientific requirements up to 2013 so that Defra/WAG can plan for appropriate investment in science over this time span. An important component of this project is identifying possible future scientific priorities, uncertainties and scenarios looking at global, economic

and social trends and those that are more specific to Defra/WAG's current scientific and policy interests.

Background to the Programmes

- **Farming and Food LINK Programmes**

LINK is a programme that encourages innovative and relevant research to support its wealth creation and quality of life goals. Because of its relevance to industry and the collaborative nature of the work, this is an area that is given priority for sponsorship. Currently, Defra provides grants for approximately £5 million of research per year to various consortia in five Farming and Food Science LINK programmes. Research projects funded through LINK form an integral part of the sustainable farming and food science R&D portfolio.

Link Projects cover 6 areas:

- Food
- Horticulture
- Organic
- Renewable materials
- Sustainable arable
- Sustainable livestock

LINK provides a means for small and medium-sized businesses to take an active part in research projects of direct relevance to them. Project participants range from large multiple retailers and agrochemical companies to small manufacturers of specialist instruments and machinery and individual farmers and growers as well as industry levy bodies. Welsh universities and research establishments are beneficiaries under this programme. Currently WAG feeds into the sustainable livestock and food LINK programmes.

- **The Research Council Institute and PSRE Sustainability Study (RIPSS)**

The Government is committed to strengthening and improving the sustainability of the UK's Science and Engineering Base. For the university sector this has become a major policy concern in recent years. A number of initiatives are being taken forward to address these issues (including additional capital/recurrent funding) and reforms are being proposed to the Dual Support system of research funding. These reforms include a requirement for better strategic management of university research base assets and improved systems for costing and pricing for recovery of full economic costs.

The rationale for improving university research applies equally to publicly funded research elsewhere in the national science base, namely the Public Sector Research Establishments (PSREs). The Government's Chief Scientific

Advisor and Director General Research Councils have approved a study to examine how to improve the sustainability and strategic coherence of the £1.6 billion non-university public research sector. WAG are working with DEFRA on this project to look at wider opportunities to strengthen the consortia approach to undertaking research in Wales. The University of Wales and IGER are currently evaluating such options. WAG are working to secure a strong basis for IGER and other research establishments in Wales.

Current Work Areas

Technical Services Division (TSD), EPC lead on research and development links to Defra. During the past year WAG has had input into a number of specific work areas over and above those previously detailed. These include:

- The Joint Code of Practice for Research – Audit programme 2006-7

The JCoPR was issued in May 2003. Since June 2004 all Defra and FSA contractors, applying for research funding, have been required to make a declaration of compliance with the provisions of the JCoPR. It was agreed at the outset that a number of projects would be audited and the code has been running a sufficient length of time to allow this to happen. TSD was involved in the selection of the contractors to undertake work on an England and Wales basis.

- Environmental Research

WAG funds a research and monitoring programme to provide information to guide the future development of environmental policy in Wales. As part of this programme, funding is being provided to develop an Environmental Research Hub for Wales based in Bangor, along with contributions from other key stakeholders, namely the Countryside Council for Wales (CCW), the Environment Agency and Forestry Commission. Management would be by University of Wales Bangor in conjunction with the Centre for Ecology and Hydrology (CEH Bangor), supported by a steering group representing co-funders. The proposed mission for the Environment Hub is to further strengthen the evidence base for policies/actions to support the outcomes of the Welsh Environment Strategy and to provide a co-ordinating function for environmental research in Wales.

- ProSafeBeef

TSD has supported an EU Framework 7 application for the ProSafeBeef programme, submitted by IGER. Approval for this initiative will have a major impact on this sector in Wales and outcomes are expected shortly.

For specific projects that TSD are involved with please refer to the table in Annex 1.

ANNEX 1

Operational Work Areas

Within a number of operational work areas, other members of the Technical Services Division have direct links to Defra work groups. The table below illustrates the work being carried out on behalf of WAG and anticipated future involvement. This is an area where WAG plan to allocate an increased resource in 2006/7.

Person/Division	**Research and/or evaluation links with Defra/External Organisations/WAG Departments**	**Developments made or project highlights from 2005/6**	**Areas of research or evaluation for involvement during 2006/7**
Havard Prosser	Environment Directorate, e.g. Air and Environmental Quality Division, Global Atmospheres Division and Living Land and Sea Directorate including: ▪ Wildlife and Countryside Division ▪ Marine Environment Division, ▪ Environmental Land Management	Involvement includes input to research plans to meet Welsh needs, membership of steering groups, and commenting on tender proposals and draft reports.	Air quality, marine, wildlife and countryside, soil protection, natural environment protection, climate change, and sustainable consumption and production.
Chris Lea	Member of the Social Research Group	Presentation to Defra and the Universities of Wales on R&E in the Welsh Context	Feed in Welsh priorities and creating links with the Wales Rural Observatory and Defra.
Peter Samuel - TSD3	Soils (Defra & Environmental Agency) Agricultural waste (Defra) Agricultural diffuse pollution (Defra)	Set up Wales Catchment Sensitive Farming project (CSF)	Wales CSF project includes setting up research to computer model pollution in Wales CSF catchments and evaluate the effectiveness of CSF project.
Simon Rolfe OCVO	Quinquennial Review of TB and related work including the link to wildlife.		OCVO & TSD will be feeding into the research programme
Vicky Davies – TSD3	Bio-energy R&D Funder Forum - organised by DEFRA including all devolved administrations which evaluates the R&D carried out across the UK on energy crops and identifies R&D gaps.	Woodland & Biomass Steering Group set up, organised between TSD and Forestry Commission.	

Ken Stebbings – TSD2	Development of a system to evaluate the effect of agri-environmental schemes on farms – a Defra funded exercise.		Evaluation of the Animal Health and Welfare Strategy implementation in Wales for the Office of the Chief Veterinary Officer Welsh Ewe Genotyping Scheme Years 4 & 5 - monitoring and evaluating on behalf of OCVO, for next two years.
Richard Evans – TSD2	Defra BD1228 Heather re-establishment project Grassland (BD14) meetings Environmental Topic group meetings to decide on future R & D and Welsh representation. Countryside Survey 2007 meetings - commented on project initiation document and contract tenders.		
Bryn Thomas – TS2	Sits on the Hybi Cir Cymru R and D Advisory Group. This assesses R and D bits seeking HCC support. Projects may be taken on by HCC only or joint collaborative working with EBLEX and QMS.	Hybi Cir Cymru / Meat and Livestock Commission / QMS / EBLEX joint devolved body workshop 'Industry Development Through Research' to define sheep and beef industry priorities through to 2015	Pontbren - R and D Project, a Steering Group will be set up shortly. First issues are to give advice and direction on evaluation.

Environment, Planning and Countryside Committee

EPC(2) 09-06(p8)

Date: 15 June 2006

Venue: Committee Room 2, Senedd

Title: Defra paper for the National Assembly for Wales Environment, Planning and Countryside Committee on Agri-Environment Research in Wales

Defra's research and development

1. Defra has a research and development (R&D) budget of some £150 million. This does not include spending on, for example, surveillance, monitoring and statistical surveys. The primary role of Defra's investment in research is to support the development and delivery of its policy objectives. Since the creation of the Department in 2001, Defra has been reviewing its investments in science to seek a better alignment of its research with its strategic priorities. Details can be found in the 10-year science forward look[1] (July 2004) and in the recent consultation on the Evidence and Innovation Strategy[2] (October 2005).

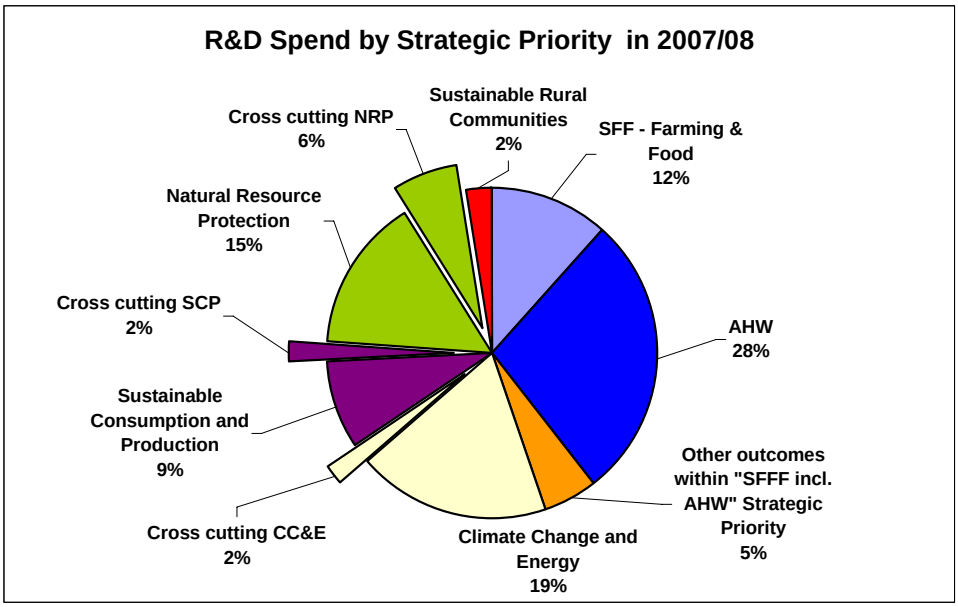
2. Defra has identified five strategic priorities, within the overall aim of sustainable development. They are set out in the Department's five-year strategy, Delivering the Essentials of Life[3]:

- Climate change and energy;
- Sustainable consumption and production;
- Protecting the countryside and natural resource protection;
- Sustainable rural communities;
- A sustainable farming and food sector, including animal health and welfare.

3. The strategic priorities provide a way of representing Defra's R&D spend. Figure 1 gives an illustration (for 2007/08) of the proportion of R&D spending associated with each priority. The "exploded" slices give an estimate of the contribution of sustainable farming and food research to other strategic priorities.

[1] http://www.defra.gov.uk/science/documents/forwardlook/ScienceForwardLook3rd.pdf
[2] http://www.defra.gov.uk/science/how/documents/Evidence%20V4%20BOOKMARKED.pdf
[3] http://www.defra.gov.uk/corporate/5year-strategy/5year-strategy.pdf

Figure 1



4. The way Defra's R&D budget is allocated across the Department's Directorates General is set out in table 1 below[4]. The Welsh Assembly Government (WAG) has close links across the whole Department and makes a full contribution to the development of Defra's research programmes.

Table 1

£ million	05/06	06/07	07/08	08/09	09/10	10/11
Environment	39.5	45.8	48.8	50.4	51.9	53.2
Living Land & Seas	17.3	18.8	19.9	20.1	20.3	20.5
Sustainable Farming & Food	38.5	34.0	32.3	30.5	28.8	27.2
Animal Health & Welfare	40.6	41.1	39.7	39.7	39.7	39.7
Chief Scientific Adviser	9.7	9.5	8.6	8.6	8.6	8.6
Total	**145.5**	**149.2**	**149.2**	**149.2**	**149.2**	**149.2**

Agri-environment research

5. In 2001, the Government asked Sir Don Curry to chair a Policy Commission to examine the sustainability of the farming and food industries. Part of the response to the Policy Commission's report was to establish a Sustainable Farming and Food Research Priorities Group (RPG). The RPG, chaired by Professor Chris Pollock, issued its first report in March 2005 in which it identified seven themes grouping together potential areas of research. Drawing on the RPG's work and in the light of the publication of the Department's five-year strategy, Defra decided to restructure the sustainable farming and food research programmes. Four new cross-cutting research programmes have been put in place, namely Agriculture and Climate Change, including climate change adaptation and mitigation, energy efficiency and

[4] The figures for 2007/08 onwards are provisional, pending the outcome of the 2007 comprehensive spending review

crops for industrial uses, and air quality; Sustainable Water Management, including water quality and efficiency of water use; Sustainable Farming Systems, including organic farming and biodiversity of farmed land as well as improved systems of conventional production with a reduced environmental footprint; and Food. As projects in the existing sectoral programmes e.g. arable crops, livestock, horticulture etc come to an end, resources will be transferred to support work in one of the new programme areas. The sustainable farming and food research programme is in a period of transition as the old programmes draw to a close and the new ones start up, at the same time as adjusting to lower budgets following on from the reprioritisation of Defra's science spending.

6. Although the Sustainable Farming and Food DG manages the bulk of Defra's agri-environment research, other parts of the Department also commission agri-environment research. In particular, Defra's Living Land and Seas DG has research programmes in support of Defra's work on biodiversity, soils and land use.

Defra's investment in agri-environment research in Wales

7. Defra makes significant investments in agri-environment research in Wales. The most important partner for Defra in Wales is the Institute of Grassland and Environmental Research (IGER), an institute of the Biotechnology and Biological Sciences Research Council (BBSRC). Table 2 gives figures on Defra's investment at IGER since 2001/02. Apart from its headquarters and research stations in mid-Wales, IGER has an outstation at North Wyke in Devon. Taken as a whole, IGER's facilities and expertise provide a strategic scientific resource for Defra in understanding the environmental footprint of agriculture, in particular in relation to livestock and grassland management. IGER is contributing to all the new Defra sustainable farming and food cross-cutting research programmes. Current areas of research at IGER include:

- Agricultural inventories on climate change, e.g. greenhouse gasses;
- Animal nutrition – grass/forage breeding for improved characteristics, e.g. nutrient-use efficiency and resistance to climate change;
- Management of hill livestock to restore upland biodiversity and landscapes;
- Meat quality;
- Conservation of forage genetic resources in the UK;
- Genetic improvement of Miscanthus for biomass;
- Diffuse pollution inventory and modelling of catchment-based diffuse pollution;
- Involvement in Defra's Environmental Stewardship (ES) programme (see paragraph 8 below).

Table 2: Defra investment at IGER

	2001/02	**2002/03**	**2003/04**	**2004/05**	**2005/06**	**2006/07**
Committed	*5,848*	*6,114*	*6,433*	*6,436*	*5,828*	*5,171*
Planned						*429*

(£k)	***5,848***	***6,114***	***6,433***	***6,436***	***5,828***	***5,600***
LINK*	*0*	*124*	*226*	*722*	*648*	*627*
** LINK costs are paid to consortia, these indicated include IGER as a participant.*						
Of the £5.8 million in 2005/06, around £3.8 million was committed to Welsh sites.						

8. Defra's Environmental Stewardship (ES) research programme directly supports the Department's new ES agri-environment scheme that was launched in 2005. Although Wales has its own agri-environment scheme, Welsh interests are covered either through projects on generic agri-environment issues or through the inclusion of Welsh experimental sites in projects covering England and Wales. A major part of the ES programme addresses grassland biodiversity and its enhancement. IGER has been the main provider for this research over many years, with particular strengths in grazing behaviour and its impact on the structure and diversity of plant communities. Through collaboration with other research organisations, IGER has also studied bird and invertebrate population responses to extensive management practices. Most of these projects have been based at North Wyke in Devon although a number of them have included experimental sites in Wales. In addition to IGER's work, ADAS Pwllpeiran is leading a project to develop environmentally sustainable and economically viable grazing systems for the restoration and maintenance of heather moorland. Other projects in the ES programme have included a Welsh site as one of a number of experimental sites, e.g. bracken control and post-control re-vegetation at Liverpool University (Carneddau, Snowdonia), heather moorland demonstration sites with the Heather Trust (Gwerclas, North Wales) and creeping thistle control with the Centre for Ecology and Hydrology (Bronydd Mawr).

9. There is also a Welsh site (ADAS Pwllpeiran) in the long-term trial of sewage sludge to agriculture. There are several other soil projects which involve sampling of Welsh soils.

10. Another significant area of activity is the Countryside Survey, which involves sampling of over 500 1km squares over Great Britain to determine changes in the quality of the countryside. In the last survey in 1998, the number of survey squares in Wales was increased markedly (partly funded by WAG) in order to provide statistically robust figures for Wales. The next survey is planned for 2007, and is expected to involve funding from WAG as well as from Defra and the Natural Environment Research Council.

11. Defra currently has a number of research programmes/projects at other bodies in Wales, including the University of Wales Aberystwyth, Swansea and Bangor, and the Centre for Ecology and Hydrology (CEH), Bangor. The CEH, for example, undertakes directly a number of programmes of research into the levels, fate and effects of air pollution. This includes projects worth around £650k per annum on the impacts of atmospheric pollution on vegetation and ecosystems, and the development of models for predicting ecosystem impacts. Defra also funds a series of projects with a value of around £650k per annum on the impacts on UK freshwater ecosystems. This UK work

includes a number of projects based in Wales and utilising data from sites in Wales. Defra also has a variety of air pollution monitoring networks which have sites in Wales.

Written evidence provided by The Biotechnology and Biological Sciences Research Council (BBSRC) is available in pdf format only:

http://www.wales.gov.uk/assemblydata/N000000000000000000000000045046.pdf

Environment, Planning and Countryside Committee

EPC(2) 09-06(p10)

Date: 15 June 2006

Venue: Committee Room 2, Senedd

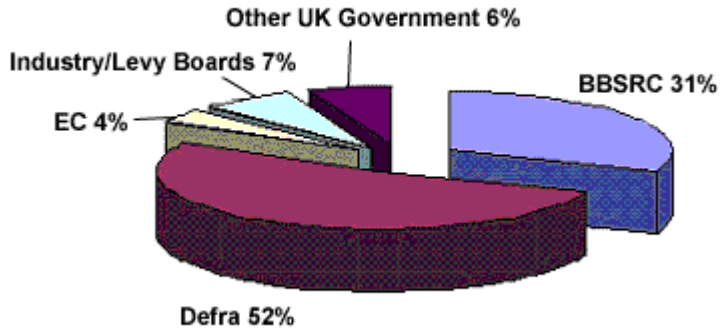
Title: Written Submission on Agri-Environment Research from the Institute of Grassland and Environmental Research

1. A snapshot of IGER

a. General Information

The Institute of Grassland and Environmental Research (IGER) is one of seven Research Institutes that are sponsored by The Biotechnology and Biological Sciences Research Council (BBSRC). The Institute is unique within Europe in carrying out a coherent research programme that links programmes in crop improvement, forage conservation, ruminant nutrition and behaviour to system studies that emphasise land, landscape, soil, water and manure management. It carries out basic, enabling, strategic and applied research and integrates this with a structured knowledge transfer programme. It uses its skills, expertise and unique field resources to do this and to carry out research in related areas such as amenity grassland, environmental management and biomass/energy crops. IGER's work aligns closely to elements of both BBSRC and Defra strategy, and also supports the aims of other government departments, EU-Framework programmes and Levy Bodies (see below). Through long-term strategic alliances with industry, the Institute also supports UK agribusiness. The Institute contributes to policy formulation and to the effective delivery of specific environmental goods and is active in promoting the science and society agenda. IGER science is currently organised in three departments. The science departments are divided into programmes (ten in all), each of which has a range of project funding. Operational management is via the Institute Executive Committee, comprising the Director, the Institute Secretary, the Strategic Development Director, the Institute Business Manager and the three Departmental Heads. The Institute Governing Body is involved in strategic discussions and individual members have directed links to specific science departments. In 2005/6, the Institute had an income of ca £18M, supporting a complement of around 310 full-time equivalents. Of this, some £17M was research income, with most of the remainder coming from sales of agricultural products. Over recent years, total income has remained broadly steady in real terms, although there have been some changes in the balance between different income streams. The distribution is shown below, which indicates the predominant position of Defra as a funder of research at IGER. BBSRC income is mainly through a Core Strategic Grant, which supports the underpinning science and which is reviewed regularly, plus some project grants and monies for equipment and capital expenditure.

Distribution of Funding, 2004/5



b. Location

The Institute has four sites, the largest of which is near Aberystwyth. Here work on plant breeding, plus basic plant, animal and microbial science is carried out alongside beef systems studies. Dairy systems studies are undertaken at Trawscoed, some 12 miles south and there is an upland site at Bronydd Mawr, near Brecon, where a range of systems-based and agroecological studies are carried out. The second site of the Institute is at North Wyke, near Okehampton in Devon, where work on soil-atmosphere-water interactions, the agroecology of grazed landscapes and farm manures and residue management is based. The Aberystwyth site is leased from the University of Wales, Aberystwyth and the Bronydd Mawr site from the Crown Estate Commissioners. North Wyke and Trawscoed are owned by BBSRC. The Institute has a current asset value estimated at £50M, and an estate of 1120Ha in total. Within the current research portfolio, there is a requirement for experimental facilities in the uplands (Bronydd Mawr) and for access to field-scale soil/hydrological science facilities linked to grassland systems (North Wyke). Additionally, the restructuring of the Institute in 1990 grouped work on ruminant systems (conventional beef production and dairying plus organic dairying) at Plas Gogerddan/Trawscoed. An estates plan for the entire IGER holding has recently been developed and is discussed below.

c. IGER's Strategic Relevance

Overlying all other drivers is the globalisation of agriculture, land use and trade in farmed products. WTO movement towards trade liberalisation has also influenced CAP reform and resulted in the abolition of direct production subsidies whilst permitting continued support for land use enterprises. This is an entirely new environment within which to direct R&D and has strongly emphasised the importance at both UK and EU level of measures to promote sustainable development. IGER currently undertakes research on land use systems that deliver both economic and environmental goods, that promote rural sustainability and a multi-functional landscape and that develop options to meet the challenges of climate change. Our studies emphasise the

importance of product quality in terms of securing premium markets and of guaranteeing safe and healthy food. They also seek to integrate the delivery of environmental goods at the catchment and landscape scale, as well as on-farm. Increasingly, therefore, IGER's research outputs impact beyond the farm gate in both policy and marketing terms. The concept of *eco-efficiency*, the delivery of useful outputs produced in a way that minimises adverse impact and maximises environmental benefits is central to our research. Grassland makes up 50% of the UK land area which, together with the grassland boundaries of components such as arable crops, is the repository of much of its biodiversity. Grassland habitats are recognised by the EU as being of great importance and effective management is needed to protect them as farming practices change following CAP reform.

2. Current Challenges

There are three major issues that impinge upon the Institute currently. These are the Defra funding reductions, the BBSRC Governance Review and the broader issues of sustainability.

a. Defra funding reductions

Defra Income at IGER, 2002-2009 (£M)

	03/04	04/05	05/06 Budget	05/06 Actual	06/07	07/08	08/09
Total Defra income (received and confirmed; including Defra contribution to LINK grants)	7.67	7.73	7.89	6.92	5.89	2.75	1.28
Industrial element of LINK		0.43	0.41	0.41	0.42	0.42	0.43
Unconfirmed Defra income					0.37	0.12	0.12
Targeted Defra income						3.22	4.85

Figures are not inflation-adjusted.

Prior to 2005/6, Defra income remained reasonably steady in cash terms. There was a significant reduction last year that continued through into the current financial year. The figures beyond 2006/7 reflect the phased ending of current contracts, with the targets indicating what is needed to bring income back to the 2006/7 level in cash terms. The projected shortfall for 2006/7 and beyond would, if not addressed, mean that the Institute would become insolvent during the current financial year. Given that staff costs are 66% of total costs, savings on this scale will need a significant reduction in complement (estimated at ca 40 posts). Based upon the areas of work where funding has been withdrawn, we have identified pools of staff and selection methodologies that have been agreed with the Trade Union Side are being used to identify "at risk" posts. Following agreement with BBSRC, at risk" staff have been notified and, after due consultation, Compulsory Redundancy notices issued. During the notice period, we will withdraw these notices for specific staff if that person can be saved as a result of someone else applying for Voluntary Redundancy (although the post would still be lost). Alternatively,

if new monies are obtained, then we would withdraw notice as appropriate and the posts would be retained. There is a risk of key staff seeking new positions during the notice period, but I feel that I have no alternative. There is a strong possibility that further funding for Beef Quality research may be obtained during the six months notice period. However, the Institute already has significant "unconfirmed income" targets that are normal for this stage of the planning process and cannot accept the additional risks associated with holding back on the actions above until pending funding applications are resolved. A range of work on detailed interactions between ruminant animals and their forage-based feeds will be curtailed as a result of these cuts, which will impinge on work elsewhere such as forage breeding. Ruminant systems studies will however, continue both at Bronydd Mawr and at North Wyke. The Trawscoed site (all or in part) is now surplus to requirements and will be disposed of.

A couple of years ago, the Research Institute and PSRE Sustainability Study (RIPSS) was carried out by OSI. This dealt with (among other things) the relationship between Institutes and Government departments that were major funders (more than 15% of total income). Defra is covered by this agreement, which indicates that they sponsoring departments need to become involved in maintaining the long-term capacity of the Institute. Defra has not yet reached agreement with BBSRC over the implementation of RIPSS, which could be helpful in terms of promoting continuity of funding in exchange for a role in strategic management.

b. Governance, Sustainability and Efficiency issues

Even before the Defra reductions, BBSRC was becoming concerned about the sustainability of Institutes. New rules for Universities and Institutes for full cost recovery on contracts mean that annual income must meet the targets for capital reinvestment. Financial and HR management is increasingly complex and requires strengthening across the BBSRC and the cost of maintaining an equipment base that is fit for purpose across the mission is increasing. Furthermore, RCUK has made it clear to BBSRC (and the other Research Councils) that there will need to be operational efficiencies in order to demonstrate a reduction in the "back office" costs of UK science as part of the OST submission for SR2007. Institutes will become directly involved in making these savings. Discussions are already ongoing between two Institutes that are close geographically to merge their "back office" functions and a major development in Edinburgh will bring together SEERAD and BBSRC Institutes and part of Edinburgh University to produce a coherent science facility on a single site with reduced running costs The BBSRC review of Governance (which is intended to report in October) will look at a range of options and highlight those that will simplify governance and facilitate either or both of science and back office cohesion. Much of what has been said by BBSRC in its letters to IGER since January is an acknowledgement that change will come, but also an encouragement to maintain flexibility so that IGER can make the most appropriate choice. The increased alignment with Rothamsted Research (RRes) is a logical continuation of formal linkages already in place in soil science and in plant genetics/genomics, and will help

current discussions in Biorenewables/energy crops, and in agroecology. Of themselves, these discussions, which will not be implemented until the 2008/9 FY, will not affect either the Institute mission or its scale of operations. I am sure that BBSRC would welcome similar formal actions involving CEH, and has responded to the CEH consultation accordingly; and the SEERAD MRPs are already involved in such discussions. I am not aware of any pressure to restrict IGER's mission (or that of RRes) to only those areas of science that can be managed in concert, so I will continue to support the full range of IGER science subject only to issues of income and affordability. I have to say that I view these steps as desirable and timely; although some do not. The details of the Governance review process have been published, Institute Governing Bodies will be closely involved and it may well be desirable for both WAG and HEFCW to input.

In terms of likely outcomes, two feasible models are clearly pertinent to IGER. The first would involve some back office activities being taken over by BBSRC and a change in status. This, coupled to management of science via more cross-Institute themes, could deliver increased sustainability and efficiency gains. The second would involve a closer relationship with one or more HEIs who would increasingly be involved in both management and science strategy. This model could be attractive within a Welsh (and possibly within a South-West Region) context, but it does bring challenges in terms both of cohesion between sites and of governance. I believe that the timespan of the BBSRC review will allow such options to be explored with interested parties, and I have already had "without prejudice" discussions with HEI colleagues, using the proposed actions in Edinburgh as a model.

3. Conclusions

My case is that our activities to date have been proportionate, unavoidable and consistent with the broader policy environment. I also believe that the wider issues are of general significance to all Institutes, not just to IGER, and that BBSRC will be supportive of actions that offer a viable way forward, without wishing to impose a "one size fits all" solution. I would see a continuing role for IGER as a major contractor for Defra in areas relevant to pastoral land use and look forward to resolution of some outstanding issues as a way to expedite this. I hope that WAG will feel able to support IGER in its discussions and to help us towards a solution that improves our sustainability and preserves our capacity to deliver evidence in support of both policy and innovation.

Environment, Planning and Countryside Committee

EPC(2) 09-06(p11)

Date: 15 June 2006

Venue: Committee Room 2, Senedd

Title: Submission from Coleg Llysfasi Agri Environmental Research.

1 Coleg Llysfasi has provided vocational education and training for successive generations of farming families since 1920. The College is very well placed to provide the three main pillars of its work, namely:

(a) Initial vocational education and training (VET) for young entrants to farming, forestry and environmental care.
(b) A wide range of Continuing Professional Development (CPD) to both farmers and the wider rural community.
(c) Undertaking relevant technology transfer activities which are aimed at applying innovative scientific findings into secure farming practices.

2 Located at the head of the fertile Vale of Clwyd, some four miles south of Rhuthun, the College is ideally placed to serve its community. The College's 1.3million litres of milk quota is filled from the 150 pedigree Holstein Friesian dairy herd with progeny used as dairy replacements or beef production. Along with stratified flock of nearly 2,000 breeding ewes, the College has adopted an integrated framing system of intense dairy farming along with upland sheep and beef production. The College grows some fifty acres of maize silage and twenty five acres of whole crop silage as components of the carefully balanced winter feeding on the 650 acre home farm and 100 acres of rented land.

3 As well as running a successful farm business, the College owns and manages some 150 acres of woodland of which 50 acres are mature mixed hard woods. Within its teaching and learning activities, Coleg Llysfasi encourages scientific principles of production along with the best husbandry practice. With the pendulum of production swinging towards an integrated farming system of sensitive production of high quality meat and milk, there is an increased awareness for sound environmental practice, livestock welfare, bio-security and traceability already incorporated into of the College's teaching and learning programmes.

4 The importance of agri environmental research along with relevant technology transfer activities and an integrated advisory service with high quality vocational education and training should be at the heart of the development of agri environmental programmes. The present system is unsustainable and some programmes, such as the Clwydian

ESA, require replacement. There is a responsibility on all providers of agri environmental activity to pool their resources and to be more effective in meeting the shared aspirations of environmentally sensitive farming.

5 Some options for future activities:

(a) Biomass. The Rural Development Plan highlights the importance of the timber industry and in particular the importance of adding value to Welsh woodlands. There are opportunities to establish an effective centre for woodland technology with Convergence funding support. Llysfasi, in conjunction with a private environmental and civil engineering firm is evaluating alternative uses for willow as a barrier, for land stabilisation and as a habitat for canopy living small animals.

(b) Water-catchment. In partnership with neighbouring farms, the College is a suitable venue for evaluation of water catchments within a defined region. The use of ground water supplies and natural filtering and 'cleaning' of re-cycled water along with licensed bore holes form a valuable resource to study water catchments, nutrient balance and reduction in potential pollution.

The College submitted a proposal for Objective 1 funding to evaluate water catchments. This proposal was not accepted within the current funding structures.

(c) The process of generating energy from bio fuels remains under-developed. The College has undertaken a desk exercise on alternative crops for energy production. No field trials have been conducted, as yet.

6 Within a programme of sensitive farming practices, Coleg Llysfasi has undertaken a range of activities which are aimed at providing models of good practice. This programme of activities serve as a teaching resource for primary and secondary schools as well as initial training provision post 16 and contribute to the promotion of enhanced environmental practice to young farmers.

(a) The College has embarked on the re-establishment of a network of hedgerows. These have resulted in effective field boundary maintenance and in the creation of 'wildlife corridors' and enhanced habitat sites for wildlife.

(b) Strategic planting of broad-leaved hardwood to enhance the landscape as well as to provide shelter for wild birds and animals has taken place in suitable locations on the College farm.

(c) The designation of wetlands and non-grazing areas to encourage bio-diversity, a rich bird life and indigenous plant growth is developing as an integral part of sound husbandry and well informed learning programmes.

(d) The fencing of streams and rivers and the sensitive planting of the river banks has encouraged a rich fauna and flora to thrive in the protected areas.

(e) The creation of micro habitats for ground nesting birds has seen an increase in such species.

(f) The College has planted seed yielding plants in strategic locations to encourage a variety of bird species.

(g) For some years, organised shoots have not taken place on the College farm. However, as part of a syndicate of local farmers, the College participates in a carefully organised vermin and fox control programme.

(h) Bee keeping has flourished on the College land resulting in a revitalised Bee Keepers Association in the area and the commercial production of local honey.

(i) This past winter allowed the College to complete its third season of using wood chip as an alternative to straw for bedding sheep and cattle. A combination of chip size and wood type has allowed an extensive evaluation of wood chip as an alternative to other livestock bedding. Such projects underline our clear commitment to the development of the best in innovation in farming practice.

7 The role of environment schemes in Wales is noteworthy. However, with approximately 25% of farm business taking part in such activities, it is difficult to measure their impact across Wales. The College is located in the Clwydian Area of Outstanding Natural Beauty. It has participated fully in the programme to enhance the wildlife and local habitats and encourage environmentally sensitive farming practices to continue.

8 The incorporation of FE colleges in 1993 created a market place for learning. Land based studies, by their nature being more expensive to provide and more fragmented, have presented significant challenges to the providers of learning. Llysfasi has not been immune to these challenges. Careers in other occupations than farming have increasingly become more attractive, especially to individuals with non-farming backgrounds. The consequent downturn in numbers of young people entering the farming industry has resulted in an increasing

shortage of young people living and working in the countryside of rural Wales. There is an urgent need to integrate the public sector services to ensure that the very best technical advice, technology transfer activities along with high quality education and training and professional development are genuinely integrated for the long term sustainability of the Welsh countryside.

Annex 2

Transcript of evidence

Sesiwn Dystiolaeth: Ymchwil Amaeth-amgylchedd
Evidence Session: Agri-environment Research

[354] **Glyn Davies:** We have a host of prestigious guests here now. How will we manage this? Shall we invite everybody to make a comment? I thought that the session that we had at our last meeting, when all of our guests made comments at the beginning and then we had a pretty informal discussion afterwards, worked as well as anything. Does anyone have an objection to our doing the same thing again? I see not. We have received papers from all of you, but it would be useful if you could make a few comments. We will take all five; I am not sure in which order we should go. Where is the best place to start?

[355] **Mr Lea:** I will talk strategically about what has gone on in research before others come in, if that is all right with you.

[356] **Glyn Davies:** Okay. You do that, and then we will have a question and answer session and an informal discussion. I know that it is technically an evidence-taking session, but I think that the more informal a discussion we have, the more informative it is. Whatever order we take, you will have to deal with it. I welcome all of you here. Thank you for coming.

[357] **Mr Lea:** I am Chris Lea, Head of the Technical Services Division in the Environment, Planning and Countryside Department. On behalf of the Minister, I draw your attention to paper 7 on the Welsh Assembly Government's links to the Department of Environment, Food and Rural Affairs research programmes. I propose to quickly highlight where we engage with DEFRA on the Welsh research agenda at a strategic level before you focus particularly on agri-environment research.

[358] The research budget is held by DEFRA on an England and Wales basis. Basically, through DEFRA's science and innovation strategy, the department spends more than £325 million a year on science. That includes research, monitoring, surveillance and evaluation, and underpins a broad range of policies, including environmental protection, farming and food, animal and plant health and sustainable energy generation. DEFRA colleagues will expand on that later this morning.

[359] Welsh Assembly Government links with DEFRA research have strengthened in recent years. There are three core strategic areas where we have influence. The first is the Science Advisory Council, the second is the sustainable farming and food research priorities group, and the third is the evidence and innovation strategy. I will draw your attention briefly to a couple of pointers on those. The Science Advisory Council provides DEFRA with expert, and, I must emphasise, independent advice on science policy and strategy. It involves having the best scientists to give independent advice to DEFRA. The Science Advisory Council operates a number of sub-groups on which the Welsh Assembly Government plays a key role. As part of the SAC engagement, the Welsh Assembly Government has provided input into the Office of Science and Innovation review of science in DEFRA, led by Sir David King; that work is ongoing. We are just about to start work on a risk sub-group, looking at the risks to England and Wales on a broader basis. That will also look at things like avian influenza.

[360] The second group is the sustainable farming and food research priorities group, which was also set up as an independent and open source of advice on research priorities, and sustainable food and farming in particular. Its aims were to achieve better integration in the research community from the research council base through to the levy boards, like the Meat and Livestock Commission, and industry. Some of you will be aware that Wales hosted the sixth in a series of workshops as a part of defining these strategy priorities. Chris Pollock from IGER, who is here today, chairs the group, and we are now working to take many of these actions forward within Wales as part of the evidence and innovations strategy.

[361] So, we provide a lot of work for the evidence and innovation strategy. The strategy is being developed to ensure that the needs of the Welsh Assembly Government and DEFRA are taken forward. DEFRA has now allocated Wales a place on the project board to take this work forward in the future. The strategy scopes the likely nature of the scientific requirements up to 2013 so that both DEFRA and the Welsh Assembly Government can plan for appropriate investment in science over time. Climate change is obviously a key feature of that work at the moment.
[362] I would like to make a couple of further quick points. The farming and food link programmes, with which we are also now involved, are private/public sector partnerships that look at research. Link provides a means for small and medium-sized businesses to take an active part in research projects of direct relevance to them. Welsh universities and research establishments are beneficiaries of such work. IGER and Pwllpeiran are examples. Just to give you a flavour of some of the projects, we are even looking at the humane slaughter of flat fish, robust dairy cows, and foot rot in sheep. So, there are a number of projects.
[363] The other project to which I would like to draw your attention is the research council institute and the public sector research establishment's sustainability study—what a mouthful. This study is committed to strengthening and improving the sustainability of the UK's science and engineering base. For the university sector, this has become a major policy concern in recent years. These reforms include looking at a requirement for the better strategic management of the whole of the university base and its assets, and at improving systems for costing and pricing within that structure.
[364] Finally, I must emphasise that the Welsh Assembly Government is now working to look for wider opportunities to strengthen the consortia approach to undertaking research in Wales. The University of Wales, Bangor and the University of Wales, Aberystwyth are starting an interesting project with IGER to evaluate and look at such options, and I know that Chris Pollock will say a little more about this later.
[365] To conclude, I would like to raise a couple of further points. On ProSafeBeef, we are looking at an EU Framework 7 application. We have supported IGER on this application, and we are awaiting the results of this project. It would be quite an exciting project on beef if we got it for Wales. I draw your attention to the annex, which highlights some of the environmental work in which we are involved with DEFRA, but I do not propose to spend time on that now, Chair. I will leave it there; thank you very much.
[366] **Glyn Davies:** I welcome Paul Green; I was told that there was a problem with your train.
[367] **Mr Green:** It was stuck in south-west London, I am afraid.
[368] **Glyn Davies:** Anyway, you have made it. Going by the order of the names that I have here, you have made it spot on time to begin.
[369] **Mr Green:** As there are a number of us, I will try to be brief. Our paper tried to set out some of the context for DEFRA's research and development and to give a flavour of the agri-environment research and development that we commission in Wales.
11.40 a.m.
[370] Following the creation of DEFRA, the department started to review its science to seek a better alignment with its strategic priorities. Our Ministers have made it clear that the environment, and climate change and energy in particular, is a top priority, and they wanted to rebalance DEFRA's science programmes accordingly.
[371] In our paper, we have given figures to show how the research and development budget is allocated to directorates-general. The decline that you can see in farming and food, and the increase in the environment directorate-general, reflect this rebalancing in line with our Ministers' priorities.
[372] Another thing that we did in the paper was to look at spending by strategic priority. We set out in the paper the way in which Ministers have articulated the department's strategic priorities. The pie chart before you for next year's figures shows that, even after some of the rebalancing that has taken place, the strategic priority of the sustainable farming of food, including animal health and welfare, still consumes over half of DEFRA's research and development budget. The other thing that we have tried to do in this pie chart, through the

exploded slices, as we have described them, is to show the considerable contribution that sustainable farming and food research makes to some of DEFRA's other strategic priorities, such as, for example, natural resource protection, sustainable consumption and production, and climate change and energy.
[373] A consequence of the strategy development that has been going on over the past few years in the farming and food sector—Sue Popple may want to comment on this—has been to move away from sectoral programmes in farming and food. That is, a move away from silos like livestock and crops to what we are calling cross-cutting research themes that are more in line with, and better with regard to, departmental priorities. As I think we mentioned in the paper, this restructuring has been informed by the work of the research priorities group, chaired by Professor Pollock. The new programmes for sustainable farming and food are agriculture and climate change, sustainable water management, sustainable farming systems, and food.
[374] In the last part of the paper, we give a bit of detail on DEFRA's investment in agrienvironment research in Wales. We picked out the Centre for Ecology and Hydrology at Bangor and the Institute for Grassland and Environmental Research as our most important partners. The Centre for Ecology and Hydrology's work for us is largely on monitoring air pollution and its impacts. IGER provides us with a strategic resource to understand the environmental footprint of agriculture, especially from livestock and grassland.
[375] The table that we put in shows that DEFRA's spending at IGER has declined over the last couple of years. This has been very much consistent with the shift in budgets, in line with ministerial priorities. However, I flag up the fact that there are discrepancies between our figures and those that Chris Pollock put in, but we can perhaps come back to that a bit later, if you wish.
[376] To draw my remarks to a conclusion, it is very much the case that, in the past few years, there have been considerable changes in DEFRA's science, particularly in the agrienvironment
field, and we acknowledge that this has been a challenging period for our
research providers. Thank you.
[377] **Dr Popple:** Just picking up the point—[*Inaudible*.]
[378] **Glyn Davies:** Hang on a second; there is a problem with the microphone. Sorry about that. We are having a bit of trouble with them. It is still a relatively new experience for us to be in this building.
[379] **Dr Popple:** I will just speak loudly; people can probably hear me.
[380] **Elin Jones:** But then the Record of Proceedings will have a problem without the recording.
[381] **Glyn Davies:** We need the microphone on to record every word that you utter.
[382] **Dr Popple:** Okay. As Paul was saying, we have moved our sectoral commodity programmes towards more cost-cutting programmes, and those are looking at agriculture and climate change, which means looking at the prediction, adaptation and mitigation of climate change within the farming and food context; the impact and mitigation of farming on air quality; greenhouse gas emissions from agriculture; and energy use and efficiency, including the production of non-food crops for energy use. We have a programme on water quality and use in agriculture, which looks at water-use efficiency in particular, but also at the impact of diffuse pollution from agriculture on water and the steps that can be taken to reduce that and to help the industry to reduce that to meet the requirements of the water framework directives and bathing water quality standards.
[383] We have a new programme on the food chain's meeting consumer needs, which involves quality foods for healthy eating, waste reduction and recycling in primary production in the food chain, and a programme on sustainable farming systems and biodiversity, which includes integrated farming systems, as well as work on organic farming.
[384] We are moving to the new programmes as the projects in the old programmes come to an end and the funding that is released from that is being moved into the new programmes. I should emphasise that we are not cutting any of the existing work; it is at the point at which

that work comes to an end that the funding is released and put into the new programmes.
[385] **Mr Visscher:** I am the executive director of the Biotechnology and Biological Sciences Research Council, dealing with operational and strategic matters, particularly with regard to institutes. I would like to briefly cover five areas: I will say a little about the role of BBSRC, our strategy for sponsored institutes, the importance to us of research sustainability and, in that context, land-based studies in particular, and I will then conclude with some comments about the Institute of Grassland and Environmental Research.
[386] BBSRC is one of the eight research councils. We have a budget of about £380 million. We are sponsored by the Office of Science and Innovation and our decisions on science are taken very much at arm's length from Ministers, under the Haldane principle, whereby we are steered by Government policy through spending reviews but we have our own peer review committees and so on to make scientific decisions. We have a council of non-executive members, with the exception of our chief executive, Professor Goodfellow, who is also deputy chairman.
[387] About one third of our research funding goes to research institutes and two thirds goes into universities. I am going to focus on the institutes. Last year, we were coming to the end of a quadrennial cycle of reviews of the seven research institutes that we cover. In advance of that, the council put together a strategy for science across the institute sector, and we broke that down into three principle areas, one of which was sustainable agriculture and land use—I will not say anything more about the others. It is important to us that the characteristics of the institutes are, to some extent, different to those of universities in that they can have a longer-term perspective and they quite often need to have research facilities with a scale and infrastructure costs that are larger than those that some universities will support. So, continuity of funding is one important aspect.
[388] So, we outlined our strategies last year and used that to help guide new funding allocations for the next four years. Our principal priority was to put more money into animal health and welfare while seeking to maintain broad stability in the area of sustainable agriculture and land use. For IGER and other institutes in that sector, that meant roughly level funding, although with some access to additional funds, particularly to encourage more collaboration with UK universities and other institutes. Indeed, there have already been some moves in the sector, for example, in soils, where there have been cross-institute programmes.
11.50 a.m.
[389] Research sustainability has been a key feature of Government policy in recent years. A 10-year policy for science and innovation, within which sustainability to create an environment within which both the intellectual and physical capital can be renewed, is seen as crucial. Therefore, for the institute sector, BBSRC has been actively pursuing these similar principles, including with IGER, where plans are being put together to give that long-term sustainability, and to try to create an attractive science base on which the UK can remain at the cutting edge. We have a good position overall in biological sciences in the world—in many areas, we are second only to the US.
[390] Therefore, to maintain that position, sustainability is crucial. The report that Chris Lea referred to is one that we have been working to in terms of the principles of that. We highlighted in our note that we have a longstanding and close working relationship with DEFRA, in terms of funding and complementary funding. However, one aspect of this report, which Paul and I have discussed for some time, is the requirement for co-sponsors and other Government agencies that are putting in more than 15 per cent of funding to an institution to try to agree a joint funding strategy, in order to help maintain the infrastructure and the base. The principal difference between us, which you may want to draw out later on, is that the BBSRC is seeking a sharing of responsibility for the sustainability, whereas the DEFRA focus is primarily on current science priorities.
[391] Moving on to the land-based facilities, across the UK as a whole, we see a gradual decline in agriculture departments across universities. Research in agricultural facilities is costly, and is often being run at a loss. At the same time, there is a general reduction, overall, in the research funding going into this area. Therefore, there is some contraction going on, and the BBSRC is keen to see that this happens in an orderly and co-ordinated manner, so

that we can see maximum synergy for the UK as a whole. With the funding councils—and we have also had some discussions with the Higher Education Funding Council for Wales on this—we are seeking to sponsor an audit of UK land-based research facilities to give us a better feel for the future, and to see whether there are opportunities to rationalise and encourage more collaboration, and perhaps dispose of sites, and even reinvest money in new facilities.

[392] Finally, on IGER, I said earlier that the BBSRC funding for IGER is broadly stable, and we have heard from Paul that the DEFRA funding is declining in accordance with DEFRA's priorities. When faced with this issue, for IGER and Rothamsted Research in Harpenden, the BBSRC felt that it needed to take some actions to help maintain the long-term sustainability of this sector. It needed to take some immediate action, so it authorised a redundancy programme for IGER, for around 40 people. Redundancies typically cost in the order of £60,000 a head on average, which is a high cost. However, we then wanted to look forward and see what opportunities there are for encouraging greater integration between cognate research organisations. We floated one option of a single funding stream between IGER and Rothamsted Research, and we encouraged the directors and the governing bodies of the institutes to look at that proposal. One option there could lead to a merger and some rationalisation, and so on, of facilities. Another option, on which I know there have been some discussions—and we have had discussions with Welsh Assembly Government representatives—has been to try to do some further reorganisation in Wales. I will leave it to Chris Pollock to talk about that.

[393] However, I will draw your attention to one model in Scotland, which is of interest. In and around Edinburgh, there is currently a move that was sponsored by the research institutes, and other bodies, to get together to try to pull together relatively small organisations to make a larger institute that would be more sustainable in the future. Therefore, two BBSRC institutes—the University of Edinburgh's veterinary school, and the Scottish Agricultural College—have come together with a co-ordinated research strategy, and have presented that to the research councils, to create a new institute of 500 plus people, which we are backing. We are investing £35 million in it, and others are investing sums as well. It is important to us that, when this sort of venture is put forward, there are tangible commitments from other stakeholders, not just warm words about this being a good idea.

[394] Finally, the BBSRC is open to the options that are on the table for the Institute of Grassland and Environmental Research at present, and is interested in any views that the Assembly Government may have on this aspect.

[395] **Professor Pollock:** I am not going to talk in any detail to the paper that you have in front of you. I will just make three broad points to try to crystallise what I have written down there. The first and most important point is that it is very important for the committee to accept the fact that land-based research and development is changing, both in the United Kingdom and worldwide. It is changing for policy reasons as a way of acknowledging the sustainable development debate, of mitigating and adapting to climate change, of protecting our environment, and of developing alternative outputs from land, such as biomass and liquid fuel crops. So, there are sound policy reasons why the Welsh plant breeding station of yesterday has to become the IGER of tomorrow.

[396] There are also compelling science reasons why research and development is changing. A great deal more generic science is done now than was done 15 or 20 years ago. For example, the breeders of wheat, barely and ryegrass share common experimental platforms because of the close similarities between the genomes of the species concerned. It makes no sense at all to work in isolation when you can work in concert in order to generate the kind of biological excellence that Steve referred to, which keeps us No. 2 to the US.

[397] There are also management reasons why land-based research and development is changing. You have heard about the fact that overall funding in the sector is declining, while, at the same time, infrastructure costs are going up—they are going up for a number of reasons, not least the fact that you cannot offset as many of them as you could before against the sale of produce, and because the full economic costing system that was introduced means that we are responsible for meeting these infrastructure costs. Perhaps something that no-one

else has commented on yet is the fact that there is also a major shift in terms of skills retention, and we are looking at very different people coming out of research now than we were 10 or 15 years ago. So, the role of research institutes in skill retention has changed. It is quite interesting that there are two research assessment exercise grade 5 universities in England and Wales teaching agriculture, namely Nottingham and Reading, and neither of them produces active farmers.

[398] IGER must reflect these changes and it is looking at a range of activities. The first one, and the one that, to some extent, has led the public interest, is the cross-cutting activities that we have undertaken, which Steve has already referred to. The second one is to build on the generic elements of our science by setting up these cross-institute and cross-higher education programmes in soil science, crop science and, shortly, biomass, agro-ecology and, almost certainly, biomathematics. Rothamsted Research is a major partner in those—and there are sound reasons why—but there are other partners as well, namely the John Innes Centre, the Centre for Ecology and Hydrology, the Scottish Crops Research Institute, and, hopefully, if we can find a modus vivendi, members of the higher education sector.

[399] The third way in which we are changing is by broadening the range of our industrial partnerships. I think that it is quite interesting that IGER has signed memoranda of understanding with Boeing and QinetiQ in the last 12 months, which is not exactly the sort of activity that you would expect from a grassland research institution. We also link with seed companies, venture capitalists and power companies, so we are looking to broaden our business base. It is very important for us to establish and maintain a sustainable relationship with DEFRA, which is still our major funder—we still get more money from DEFRA than we do from anybody else.

[400] Finally, we have to move towards the altered governance relationships that Steve Visscher outlined, and there are effectively two of these that are under active consideration. The first is the co-ordinate approach involving other institutes, and the second is the Roslin kind of approach, whereby we are looking for collaboration with people in the HE sector. The Higher Education Funding Council for Wales has sunk a substantial amount of money into reconfiguring research on the Bangor-Aberystwyth axis, part of which covers environmental and land-based research. So, there is a very active dialogue going on between ourselves and representatives from those universities, scoping out, in principle, the opportunities that there might be to create a structure that is not entirely unlike the one at Roslin, but oriented very strongly towards the reason why this committee is meeting today. Success in this would be contingent upon getting strong indications of support from a range of different bodies that this was the right thing to do to protect agri-environmental research in Wales and the UK.

12.00 p.m.

[401] **Mr Cunningham:** It is opportune that the committee is considering these aspects today of agri-environmental research. The words that we have heard hitherto really present the challenge to the farmer or to those who are managing the countryside. I am thinking particularly of how the farmer or the student interprets the cutting-edge research in applied technology transfer into helping his business to be more effective or efficient, or to be more business orientated in that aspect. I think, chairman, that there are probably three things that are worth considering in that respect, and I have mentioned them in the brief paper that I presented.

[402] The first aspect is the role of vocational education and training for those who are managing the countryside. We know of the decline in university agriculture departments and those research rated grade 5s, who have few, if any, students entering the industry, as far as a high research rating is concerned. However, we have a situation of 20,000-odd full-time farming businesses in Wales, and the number is not really declining. We need to have a quantum of people managing the Welsh countryside, not only with the skills and competence to manage the business of farming, but also to manage the interpretation of research that is coming out of research centres.

[403] The second aspect is how we, in terms of the role of agricultural colleges like Llysfasi, interpret that research into teaching and learning programmes, for students and for the farming industry, through effective continued professional development. That is reflected

in Farming Connect but could indeed be co-ordinated and developed further, as far as Wales is concerned.
[404] The third aspect relating to that is the co-ordination of technology transfer, so that the fundamental research that we have heard about, and the example coming from Scotland—from the Royal (Dick) School of Veterinary Studies at the University of Edinburgh, and the Scottish agricultural colleges—lock together into a strong university higher education research-based centre, to provide the needs of the change in priorities as far as the Government is concerned.
[405] From this, the question is begged of whether there is adequate co-operation, partnership and synergy within and between the different sectors that are servicing rural Wales. Do we, as providers of the professional service in the field, have a responsibility in that? Indeed, does this committee have a responsibility in establishing its priorities to ensure that organisations are working collectively together to use those scarce resources as effectively as possible? Effectively, what I am asking is whether we have an all-Wales strategy to service the initial vocational training, the continuing professional development, and the technology transfer for the agricultural industry in Wales, notwithstanding that we are operating on cross-border, pan-European issues as well.
[406] As far as these other aspects are concerned—and I listened to the debate this morning on the role of environmental schemes and the priorities for budgets, and all the other aspects that go with that—I am persuaded that small pockets, or oases, of high value environmental impact will have little impact as far as the wider aspect of the ecology of Wales is concerned. We need to look at a wider aspect of encapsulating a number of the available programmes in order to be effective. The people who are actively managing those will be the technicians and the technologists, who must have the knowledge to apply those to best practice.
[407] We have to be aware that there are finite resources, and we have to prioritise our research work and our teaching work to avoid duplication. That aspect of avoidance of duplication and effective use of resources to support the industry at this time is probably more critical than ever before. We have come through the 1990s, of the day market research and partnerships with industry.
[408] In the RDP, over the next five or seven years—five years certainly—we have a mechanism of transitional funding of European funds to help to augment some of the research, teaching trials, investigation technology and transfer activities that we are all involved with at a local level. There needs to be some form of active and imaginative coordination
of European structural funds to help that process along as we move to 2013 and the outworking of the RDP.
[409] Finally, we have heard about biological and agricultural applied research probably being No. 2 to the North Americans, who pour megabucks into everything. The applied research is outstanding, but the technology transfer and resources to transfer that are probably not as strong as they could or, indeed, should be. However, we want to adopt the best practice of the outworking of climate change environmental impacts, and see how we can best incorporate those into the training programmes that our students are involved in, or that the farming industry demands at a time of rapid change in the countryside.
[410] **Glyn Davies:** We have had a series of presentations covering different aspects of research. Elin may come in first.
[411] **Elin Jones:** Thank you for your presentations and for coming to this committee to discuss a very important issue. Everyone needs to realise that we are interested in research in Wales primarily, but in Wales, for Wales and for the UK and the world. However, that is all in the context of the low levels of research funding that have come to Wales historically from the UK Government in general—from all governments, because that is not a party-political issue; it is more of a general issue on research funding.
[412] It strikes me that there are two issues of primary importance here: funding and governance. That has been referred to by everyone in their discussions. I will refer primarily to the Institute of Grassland and Environmental Research, of course. On funding, a discrepancy was referred to by the representative from the Department for Environment, Food

and Rural Affairs, between the DEFRA paper and the IGER paper. I will start with DEFRA. Do you accept that there is a decline in funding into the future from 2005-06? The IGER paper puts the level of actual funding at £6.92 million, but your paper puts the level of funding from DEFRA to IGER at £5.82 million. However, the IGER paper sees a decline in future funding from DEFRA to a level of £1.28 million by 2008-09, which is quite significant. Could DEFRA respond and state whether it foresees that level of decline in funding for IGER in its own figures? DEFRA's paper does not take the funding profile further than 2006-07.

[413] On stability of funding, it strikes me that changes to policy priorities made by policy makers and politicians have far-reaching impacts in the short and long term on research and higher education institutions. So what level of consideration does DEFRA give to issues such as the stability of research institutions, the stability of research programmes and the contents of those research institutions over a longer period? A reference was made by the Biotechnology and Biological Sciences Research Council to the issues that arise if there is more than 15 per cent of co-funding. Is there any way that there can be an agreement on how the response to changes in political priorities can be planned in a more structured way, rather than in a haphazard—that is not the right word to use—or more short-term way, because those changes have a very far-reaching effect on research programmes in research institutions?

12.10 p.m.

[414] Finally, we appear to have two models that are currently under discussion in various places on the future of governance for IGER: one is the single funding stream that the BBSRC has proposed, and the other is closer collaboration between higher education institutions in Wales and IGER. I have a concern about the single funding stream with Rothamsted Research, because it loses a degree of independence for IGER. Possibly, I would see that as being a greater problem for research funding into Wales in the future via the sites that IGER currently runs in Wales—and one outside Wales, of course. Perhaps more for the BBSRC, while there are discussions happening on this—and you have said in your paper and presentation that you are open to ideas and that you do not have a set agenda on this at the moment, which is great—I would like to understand the decision-making process that you will follow, at some point, on the future governance of IGER, and also your other research institutions, I presume. How and where do you see political processes, Assembly Government and DEFRA playing a role in that decision-making process when you finally reach an outcome on the governance issues that affect research institutions?

[415] **Glyn Davies:** There were a few questions there. Does anyone wish to pick them up?

[416] **Mr Green:** I will kick off, Chair. In respect of the first question on the discrepancies between the figures that we have given you and the figures that IGER has given you—and perhaps Professor Pollock will also want to comment—I think that it partly reflects the different accounting treatments that are given, for example, to sub-contract income and the different presentation of investment through the link programmes. I do not know whether you would like to add anything, Chris.

[417] **Professor Pollock:** I think that that is exactly right. I would not want the fact that the bottom lines differ slightly to detract from what is important, which is the trajectory. The other explanation, which is in the paperwork that we put forward, is that if you look at the figures going beyond 2006-07, you will see that that kind of cycling would exist under any model of DEFRA funding, were it to be stable or declining, because of natural project turnover. It represents the fact that most of the income that we get from DEFRA is on a three or four-year cycle, hence the target levels that are down there, which would be necessary for us to get back to a steady state. It is important to realise that institutions such as IGER have most of their money on relatively short-term funding. The BBSRC competitive strategic grant is on a four-year cycle, shortly to become a five-year cycle. Most of DEFRA is on a relatively short three to five-year cycle. In fact, our two longest contracts are with commercial plantbreeding companies, because they recognise the length of time that it takes to get varieties through from initial crosses into the marketplace. So, that is the environment in which we have always lived since I became director in 1993. I think that the point that leads

into your second question is to do with the fact that the changes in that were relatively abrupt because of the policy changes in DEFRA and, as Paul was alluding to, the shifting in resource away from the sustainable farming of food into other areas. IGER would be confident, over time, that it can recover some of that income by capturing evidence and innovation money from those other areas, but in the meantime, we have to manage the process.
[418] **Elin Jones:** In the table in your paper, the targeted income that you have put down for DEFRA is far less likely to be achieved because of the changes in policy. Am I right in my understanding?
[419] **Professor Pollock:** I do not think that that is necessarily a deduction that you can draw. Those represent targets for 2007-08. They are challenging targets and all that I can say is that, over a prolonged period of time, since I have been director, the institute has always budgeted for a decline in DEFRA income and, in most years, has done better than its target. I think that it is a question of how one manages a situation; it is exactly as Paul and Sue have said, in that it represents a movement in funding.
[420] **Dr Popple:** I think that I should explain where the difficulties for the projections—[*Inaudible*.]—already in place and therefore there are forward commitments for that work. From our having explained the new programmes that we are putting in place, perhaps you can see that the areas of work that we are continuing to work on, and which will be going forward in the future, are similar areas of work to those in which IGER is already involved and is doing work for us on. Therefore, there would be a reasonable expectation that it would be able to make good bids for those programmes, as well as for the ones outside the farming and food area.
[421] **Glyn Davies:** Have you finished, Elin?
[422] **Elin Jones:** No, most of my questions—
[423] **Mr Visscher:** On the question as to balance and the sort of decision-making processes in BBSRC—
[424] **Elin Jones:** It was on the stability of funding and the issue about co-funders of over 15 per cent.
[425] **Mr Green:** May I pick up on that? Steve mentioned sustainability. It is true that the BBSRC and DEFRA are working to try to reach an agreement as to how to ensure the sustainability of institutes, in line with the Government policy paper that I think that you referred to in your paper, Steve. It has taken a little time, but we are certainly making progress. Apart from what you might call the top-down approach, in terms of BBSRC and DEFRA, we are also working from the bottom up. In the middle of last month, Sue and a number of senior policy colleagues from DEFRA spent a day with senior IGER research managers, looking at how IGER can best meet DEFRA's future needs. I do not know whether you want to make any comment on that, Sue.
[426] **Dr Popple:** We had an extremely useful session with IGER and its managers, in terms of our being able to explain to them our future plans, and outline our policy, the type of work that we are looking for, and the reasons why DEFRA funds research. I think that we also had some useful feedback from the staff at IGER. Building on that and making sure that we maintain that dialogue as we move forward is very important.
[427] **Mr Visscher:** The key issue for us in terms of sustainability is that there must be a sufficient stream of funding coming in to the institutes, from whatever source, of a relatively stable nature. That is the area in which we still need to work things through with DEFRA. I think that our sticking point has been the degree of commitment in terms of funding and the tension between accepting responsibility for that long-term view against immediate policy priorities. To go back to the Edinburgh example, when the BBSRC is looking at the sustainability of an institute, we will do some hard number crunching, asking, 'What is the evidence? What are the commitments? Is there tangible buy-in to whatever is being proposed, and can we take some comfort from that?'.
[428] In terms of the decision-making process, the council has a meeting in July, at which Chris Pollock and the director of Rothamsted Research, Ian Crute, will be making presentations. There will be some joint presentations and some separate discussions, focusing more on the scientific aspects and the opportunities for integration. Those already exist, and I

think that they are strengthening, and both institutes are to be commended on that, but I think that the council is looking for more. As part of the broader agenda, it is also looking at how greater efficiency can be achieved. The research councils are being asked to create a single service centre, in line with Government policy, and this thinking is now being applied to institutes. Research councils, collectively, are talking about a shared service centre in Swindon to provide back-office-type functions. That is one way of squeezing a bit of efficiency out of the system, and another way would be to create other consortia and groups. Therefore, we will be looking for efficiency savings.

12.20 p.m.

[429] The governance models, in terms of the BBSRC institute model, are uniform. Each institute is a company limited by guarantee, and is a registered charity, but the staff are employed by BBSRC. It is a slightly uncomfortable mix on occasion, especially when the system is under tension, and so a review has been requested by the BBSRC. It is an independent review, chaired by Sir Brian Follett. It is trying to look afresh at the subject—because this is a model that has been with us for 20 or 30 years, or more in some cases—of what we need for the future. He has just put out a consultation exercise and there is a range there between institutes that are becoming closer to the research council, and effectively being wholly owned, and institutes that are going further away, or perhaps are embedded within a university, which is closer to the Edinburgh model that I described to you, although the details of that have not yet been decided.

[430] So, in terms of chronology, there will be an opportunity in July for an initial discussion, and if there are any views from other parties available at that point, the council will be pleased to see them. In October, we will receive the report from Sir Brian Follett, which will be a further catalyst for looking at what we currently have and what action to take. I envisage that in our December meeting, which would be the next one, we would want to see firmer evidence of what the real options are and to see those analysed in more detail, with a view to the council reaching some conclusions.

[431] **Mr Lea:** I would just like to add that we are preparing a response for Wales to the Follett review as well—just so that you are aware of that.

[432] **Glyn Davies:** I wanted Elin to ask a lot of the questions that I knew that a lot of us would have wanted to ask; I think that it was her idea that we have this debate. I know that other Members want to ask questions, but I am thinking about time management. If anyone wishes to ask questions, I would welcome an indication of that; I have three people waiting already. We do not have that long before the time by which we want to finish, so I appeal for people to be concise, although we may run a bit late.

[433] **Mick Bates:** Thank you for the presentations, they were a great insight into the processes involved in research and development. My question is pretty simple. The last presentation that we heard was about how we have 20,000 businesses. How do we maintain skills based on your research? What is the link between the farmer in Wales and this research? How do you communicate to make businesses better?

[434] **Professor Pollock:** At the moment, there are a number of different ways in which research can go into practice. I will use IGER as an example, but it is by no means the only organisation that does this. For a start, we market plant varieties, and the seed is the ultimate farmer-friendly technology transfer vehicle, so industry helps us to get our research out into practice. Secondly, and very importantly for us, we are involved in Farming Connect—Bronwydd Mawr is a Farming Connect demonstration centre—and that brings us into direct contact with the industry at a range of different levels. We supplement that with our own associate scheme, so, we spend some of our own money, scarce though it is, on technology transfer. Finally, we undertake some work for levy boards, but I would argue that the role of the levy boards in undertaking applied research and development and knowledge transfer is a potential source of weakness. The review of the levy boards made the recommendation that they needed to look carefully at the balance between marketing activities and knowledge transfer, and I agree with the findings of that review.

[435] The part of the equation that remains to be joined up in Wales is the part that Fred alluded to, which is where organisations such as IGER and the higher education sector can

link into skills provision. I would like to use the term ‘skills provision’, because it covers both training and professional development, and the problem with the farming industry—he said, sounding off on one of his high horses again—is that it is good on training but not on professional development.
[436] **Mick Bates:** Good point.
[437] **Mr Cunningham:** That is absolutely right, and we have the offices of the farming unions—the National Farmers Union and the Farmers Union Of Wales—which are very active in encouraging their members to participate in various aspects of Farming Connect activities, and, indeed, Llysfasi is a development centre for beef, sheep and dairy, but farmers are busy people, and increasingly so; they do not have the time to undertake these technology-transfer activities. One could argue that this is an investment in their time, but they see their time priority in seasons, as it were. We need to have better and central coordination of the activities that are going on across Wales. *Gwlad* is one vehicle through which activities are promoted, but we need more local activity. Farmers should not have to travel for more than an hour, say, to an effective demonstration, exhibition or provision to enhance their knowledge with regard to technology transfer.
[438] There is a fundamental problem about how we get more students to study at a higher level, that is, at undergraduate or at Higher National Diploma level. The discussions that took place at this table this morning about support for students in Wales may go some way towards helping with that. Nevertheless, there is a fundamental problem with regard to the numbers entering the industry to manage the business of farming at a higher level. We need to try to be as attractive and as innovative as possible in order to prevent barriers from getting in the way of those activities.
[439] **Mr Lea:** Chair, I will just add, if I may, that technology transfer—[*Inaudible*.]—in Farming Connect of the development centres, which are working with Hybu Cig Cymru and the other levy bodies. There is a review of Farming Connect, which is also looking at how effectively this has been done.
[440] **Brynle Williams:** You have partly answered what I was going to ask. My concern is that, with agricultural institutions or rural institutions contracting, as they appear to be, we are coming lower and lower down the scale, yet the environment and getting this transfer are among the most important issues. I find it rather sad that you people are doing sterling work but that there are not enough Fred Cunninghams in Wales getting the system out to the farmers and to the young people coming into this. It is not just about farming; it is about the environment, and the work that you are doing in IGER on plant breeding and varieties of grasses to control gas emissions from livestock. It is a matter of getting this out. I am afraid that we are losing these institutions. There is a possibility that we will lose another one in Wales in the next five years; I will go no further than that. However, it is very important. It is extremely important to get this transfer down to the ground, or there will be no-one there to implement your ideas.
[441] **Glyn Davies:** That is a useful comment, Brynle. Does anyone wish to respond?
[442] **Mr Cunningham:** If we look at the number of people entering the industry—which is a different debate from what we have been talking about this morning hitherto—we can see that we need to attract more and better candidates to manage Wales and to take advantage of this technology. We probably also need to ask the question: where is entry into the industry at undergraduate and graduate level best placed as far as funding is concerned? Hitherto, it was with the funding councils, and it is now with the Department for Education, Lifelong Learning and Skills and with the higher education funding councils. However, we need to have a sufficient critical mass of people, otherwise we will continue to have concerns about recruitment and numbers.
[443] **Professor Pollock:** The Higher Education Funding Council of England takes this issue seriously. It has set up a review group, which I sit on, chaired by Professor Maggie Gill, to look at land-based training. It is to the BBSRC’s credit that it has linked to that review to try to address this issue of capacity. So, it is acknowledged that there are stresses and strains in terms of the provision of skilled manpower. I would remind you that I put skill retention and development as an important part of the continuum within which I think IGER should

occupy a part.
[444] I have a number of concerns in this area. I think that the HEFCE review will address some of them, particularly if the Higher Education Funding Council for Wales actively makes its views known. However, I share Fred's concern about the link between higher and further education. We need a clear and effective continuum between practitioners and academics, and there is a danger of that breaking apart.
12.30 p.m.
[445] **Glyn Davies:** We are running a little on the late side, but I think that we should. Tamsin, did you want to come in?
[446] **Tamsin Dunwoody:** Yes. I think that I will be a bit controversial, because I will pick up a number of the points that have been made so far. I do not believe that these are shortterm changes of priorities that are politically based. If you look at the long-term funding, and the way that DEFRA has placed that funding, it is clear that climate change is the single biggest issue for anybody, anywhere. So, I think that that shift of emphasis is clearly demonstrated in the shift in budget.
[447] I also take issue with the skills transfer and the use of information garnered from research and development, be it at UK level or at Wales level. I think that there is an ownership in the industry; the industry has a responsibility to take the transfer of knowledge and to develop skills and apply both pragmatically. I am not saying that those in the industry should necessarily write the book, but they are the people who will deliver the goods at the coalface—that is an awful lot of mixed metaphors. There are several issues here into which we will not go in enough detail. That is the first point.
[448] There are issues with regard to animal disease research that are crucial, and which certainly should be developed and moved forward. I think that any one of you would agree that we have practical methods of applying those research papers and regularly accessing them, but there is a role for Government as well, in ensuring that research is applied pragmatically in the industry. There is this idea that everything must be at research and development level. It is your final point. If you do not tie research and development to the industry or the reality, and if you do not keep that link going, it is not going to happen. What is the point of producing pieces of research that are not applied on the ground? The shift is not short term; it is long term, because the shift is towards climate change and the greater issues. I am more interested in the developmental role: that is to say, I am greatly interested in animal disease, and not just in bovine TB, but in other areas of animal disease. If you look at avian influenza, for example, you see the amount of research that is immediately required, so where is the flexibility and short-term movement that allows for that? That is something that has to be there to address disease management.
[449] In terms of the other issues, you say that it is a matter of political priorities, but where is the development role to look, for example, at marine rather than land? We are running out of land, for various reasons, and we are running out of various options, so are we looking to develop further those other options that we are perhaps not utilising as best we could, as a nation? Clearly, there are economies of scale, and there are reasons for research and development being at UK level, and I fully respect that—we should never duplicate; we should be working together. The consortium approach is absolutely right, but I have significant concerns about several of the comments made at this meeting.
[450] **Glyn Davies:** I did not think that that was very contentious. There seemed to be a wide range of agreement to me.
[451] **Tamsin Dunwoody:** It is not about being contentious.
[452] **Glyn Davies:** We will probably utilise our normal practice as a committee, in that I will ask the clerk to draw up a report. [*Interruption.*] Oh, goodness. After I have soaked the committee clerk with water, I will ask her to prepare a report of the meeting, and we will bring that back to committee, probably at our next meeting or the one after that. We will then have a discussion among ourselves about any recommendations that we might want to make to the Minister. That is what we normally do, but I do not know whether Members think it the best way of dealing with the matter.
[453] Tamsin made several points; our guests may want to respond to them.

[454] **Jocelyn Davies:** Glyn, may I make a point? I did not hear anyone complain that the Minister had changed priorities; it was just said as a matter of fact that that had happened. There was not a challenge to the fact that the Minister's priorities had changed, so that the funding had changed with them.
[455] **Glyn Davies:** I was trying to gloss over that, because—
[456] **Tamsin Dunwoody:** May I just clarify—[*Inaudible.*]—it is not short-term political. That is the point that I was making. The funding looks to me, very clearly, to be long term on the single biggest issues facing the world.
[457] **Jocelyn Davies:** Are five-year contracts long term?
[458] **Tamsin Dunwoody:** If you look at it, it is a dynamic shift away from sustainable farming and food, and to environment.
[459] **Glyn Davies:** I cannot help but feel that it would be better for us to have this debate at our next session. I thought that there was acceptance of where the trends were. It is a political reality of life that climate change is the dominating issue. I do not believe that anybody is challenging that, but it has impacts and we are interested in what those impacts are. Anyway, we will extend that debate at our next meeting. Chris, you want to come back in.
[460] **Professor Pollock:** I would point out, with regard to who is going to deliver the response to climate change on a landscape level, that it is not going to be politicians, researchers or civil service bureaucrats; it is going to be farmers.
[461] **Glyn Davies:** That is right. Tamsin, Brynle and Mick referred to the linkage between research and practitioners.
[462] **Mr Cunningham:** In respect to the points that have been made, surely it is incumbent upon the Environment, Planning and Countryside Committee to pull together those factors that are influencing countryside activities, like initial vocational training, continuing professional development and the technology transfer, as well as hardcore, fundamental research and development, into a single strategy and plan in Wales.
[463] **Glyn Davies:** We will be having a discussion at our next meeting that will be informed by the notes that the clerk has prepared of this discussion. Is there anything that any of our guests want to say to close, which might help us to do that?
[464] **Mr Green:** There is one point that I wanted to make earlier. There is a little bit of a misconception at large about the different roles and meanings of the word 'funding'. DEFRA does not fund institutes in the way that the research councils do. You have had some figures on, for example, core funding that is given to BBSRC institutes. DEFRA does not fund institutes, so there is not, in any sense, an envelope of funding that is allocated to particular research establishments. DEFRA does not even fund, in that sense, its own laboratories; they are largely financed on a contractual basis. So, we have heard about cuts in funding to particular institutes but it is not a case of there being an allocation of funding to IGER and a decision having been taken to slice however many millions off that funding.
[465] **Mr Visscher:** In terms of any future plans that evolve and come forward, the BBSRC has put some money aside for capital investment in its institute base, but I wanted to make it clear that, normally, the council only puts in around about 60 per cent of the capital funds and then looks to other parties to find that. I just wanted to draw that out.
[466] **Professor Pollock:** I would like to repeat the last line of my conclusion, which is that we are entering a phase when we will be discussing a range of options and I would like to be in a position, through Chris and his colleagues, to keep you abreast of what those discussions are and what their implications might be for Wales and for the UK science base.
[467] **Glyn Davies:** On behalf of the committee, I thank all of you for coming in and helping us. I am sure that it will inform a constructive debate and the conclusions that are drawn from that at our next meeting. That is the end of our meeting today.