



Cynulliad Cenedlaethol Cymru The National Assembly for Wales

Y Pwyllgor Amgylchedd a Chynaliadwyedd The Environment and Sustainability Committee

**Dydd Iau, 20 Chwefror 2014
Thursday, 20 February 2014**

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Cofnodir y trafodion hyn yn yr iaith y llefarwyd hwy ynndi yn y pwyllgor. Yn ogystal, cynhwysir trawsgrifiad o'r cyfieithu ar y pryd.

These proceedings are reported in the language in which they were spoken in the committee. In addition, a transcription of the simultaneous interpretation is included.

Aelodau'r pwyllgor yn bresennol
Committee members in attendance

Mick Antoniw	Llafur Labour
Yr Arglwydd/Lord Elis-Thomas	Plaid Cymru (Cadeirydd y Pwyllgor) The Party of Wales (Committee Chair)
Russell George	Ceidwadwyr Cymreig Welsh Conservatives
Llyr Gruffydd	Plaid Cymru The Party of Wales
Julie James	Llafur Labour
Julie Morgan	Llafur Labour
Joyce Watson	Llafur Labour

Eraill yn bresennol
Others in attendance

Yr Athro/Professor Iain Donnison	Cyfarwyddwr Cysylltiadau Allanol Sefydliad y Gwyddorau Biolegol, Amgylcheddol a Gwledig, Prifysgol Aberystwyth Director of External Relations, Institute of Biological, Environmental and Rural Sciences, Aberystwyth University
Gary Douch	Pennaeth Cyswllt Ffermio Head of Farming Connect
Yr Athro/Professor Janet Dwyer	Cyfarwyddwr y Sefydliad Ymchwil Cefn Gwlad a Chymunedau (CCRI), Prifysgol Swydd Gaerloyw Director, the Countryside and Community Research Institute (CCRI), University of Gloucestershire
Yr Athro/ Professor Jamie Newbold	Cyfarwyddwr Ymchwil a Menter Sefydliad y Gwyddorau Biolegol, Amgylcheddol a Gwledig, Prifysgol Aberystwyth. Director of Research and Enterprise, Institute of Biological, Environmental and Rural Sciences, Aberystwyth University
Dr Shaun Russell	Cyfarwyddwr Canolfan Ymchwil Amgylcheddol Cymru Director, Wales Environment Research Hub
Chris Short	Uwch Gymrawd Ymchwil, Y Sefydliad Ymchwil Cefn Gwlad a Chymunedau, Prifysgol Swydd Gaerloyw Senior Research Fellow, the Countryside and Community Research Institute, University of Gloucestershire
Eirwen Williams	Cyfarwyddwr, Menter a Busnes a Phennaeth Rhaglenni Gwledig, Cyswllt Ffermio Director, Menter a Busnes and Head of Rural Programmes, Farming Connect

Swyddogion Cynulliad Cenedlaethol Cymru yn bresennol
National Assembly for Wales officials in attendance

Alun Davidson	Clerc Clerc
Elfyn Henderson	Y Gwasanaeth Ymchwil Research Service
Catherine Hunt	Dirprwy Glerc Deputy Clerk

Dechreuodd y cyfarfod am 10:07.
The meeting began at 10:07.

Cyflwyniad, Ymddiheuriadau a Dirprwyon
Introductions, Apologies and Substitutions

[1] **Yr Arglwydd Elis-Thomas:** Byddaf yn agor y cyfarfod yn un o ieithoedd swyddogol y Cynulliad Cenedlaethol, ac felly bydd angen y clustffonau. Nid wyf yn gwybod pam rwyf yn dweud hynny chwaith, achos dim ond dwy iaith swyddogol sydd gyda ni. Croeso mawr i aelodau'r pwyllgor i Aberystwyth. Pleser yw cael tystion gyda ni yma heddiw. Mae gennym ymddiheuriad oddi wrth William Powell, sydd â rheswm da—rwy'n credu ei bod yn ben-blwydd ar ei fam, ac felly mae hynny'n rheswm digon da i beidio bod yma. Mae gennym ymddiheuriad gan Antoinette Sandbach hefyd. Efallai, neu rwy'n gobeithio, y bydd Russell George yn cyrraedd yn nes ymlaen. Rydym ni yma yn bwyllgor llawn heblaw am hynny. Diolchaf i swyddfa cynadleddau y brifysgol ardderchog hon yn Aberystwyth, ail yn unig i un brifysgol arall, wrth gwrs, yn nes i'r gogledd. Diolch yn fawr i'r swyddfa gynadleddau am eich holl ddarpariaeth; mae'r adeilad hwn yn rhagorol ac fe ddown ni yma yn amlach. Diolch i IBERS am ei help wrth drefnu'r cyfarfod ac edrychwn ymlaen at y cyfle i ymweld â Gogerddan yn nes ymlaen heddiw.

Lord Elis-Thomas: I will be opening the meeting in one of the official languages of the National Assembly for Wales, so you will need your interpretation equipment. I do not know why I say that either, because we have only two official languages. A very warm welcome to committee members to Aberystwyth. It is a pleasure to have witnesses with us today. We have received an apology from William Powell, who has a good reason—I believe that it is his mother's birthday, so that is a good enough reason for not being here. We also have an apology from Antoinette Sandbach. Perhaps, or I hope that, Russell George will arrive later. We are here as a full committee apart from that. I thank the conference office at this wonderful university at Aberystwyth, second only to one other university, of course, which is further north. Thank you very much to the conferences offices for all the provision that you have made; it is an excellent building and we will return more often. Thank you to IBERS for its assistance in organising this meeting and we look forward to our visit to Gogerddan later today.

10:09

Rheoli Tir yn Gynaliadwy: Tystiolaeth gan Sefydliad y Gwyddorau Biolegol, Amgylcheddol a Gwledig (IBERS), Prifysgol Aberystwyth
Sustainable Land Management: Evidence from the Institute of Biological, Environmental and Rural Sciences (IBERS), Aberystwyth University

[2] **Yr Arglwydd Elis-Thomas:** Pwrpas y sesiwn hon yw clywed tystiolaeth ar drosglwyddo gwybodaeth fel rhan o'r ymchwiliad i reoli tir yn gynaliadwy. Mae'n dda gennyf groesawu, fel y gwelwch chi, yr

Lord Elis-Thomas: The purpose of this session is to take evidence on information transfer as part of our inquiry into sustainable land management. I am pleased to welcome Professor Iain Donnison and Professor Jamie

Athro Iain Donnison a'r Athro Jamie Newbold, sydd ger ein bron ni. A gaf i ddechrau drwy ofyn cwestiwn cyffredinol i'r ddau ohonoch? Sut ydych chi'n gweld eich swyddogaeth fel ymchwilwyr ac ysgolheigion prifysgol mewn perthynas â'r diwydiant amaethyddol a'r diwydiant bwyd yng Nghymru, a pha flaenoriaeth yn eich gwaith academiaidd chi, a gwaith y sefydliadau ymchwil yr ydych ynglŷn â nhw, yr ydych chi'n ei roi i'r hyn yr ydym yn ei drafod heddiw?

Newbold, who are here before us. May I start by asking a general question to you both? How do you see your function as researchers and academics within universities in relation to the agricultural industry and the food industry in Wales, and what priority in terms of your academic work, and the work of the research institutions that you are involved with, do you give to the issue that we are discussing today?

[3] **Professor Newbold:** Thank you very much. To answer your question, I think that this is a time of enormous opportunity. There are very real demands on our lands to increase the amount of food, but also there is the need to generate fuel, ecosystems services and so forth. At the same time, the technical advances that have become possible allow real steps to be made. Coming from Aberystwyth, there is clearly a major revolution since Stapleton's days in terms of land management. We, bluntly, see the need for a similar revolution now. That will be driven through the technologies that are available to us in plant, microbial and animal sciences. It is about sustainable intensification. It is producing more from less while not doing any damage to the environment. It is about ensuring that the landscape becomes multifunctional, and produces many different products. We see ourselves as one, with our colleagues in Bangor, of the drivers of innovation in that area. I suppose that our brief here is: let us make sure that innovation is at the heart of what we do in Wales, and let us not export innovation—that is a disappointment, when discoveries are made in Wales but applied elsewhere. We should be the first place to apply these advances. We as a nation should take advantage of the technologies that we generate, and then we should export out of the country. We have the ability, due to the size of the country, to operate as a single unit. We can have a laboratory Wales.

[4] **Professor Donnison:** Thank you for the opportunity to meet with you this morning. I guess that many of us who have come into agricultural research do that because we are driven by wanting to provide solutions to problems in terms of providing the various outputs that we want to achieve from land at local, national and international levels. Now is probably one of the most challenging periods of history in terms of facing not only increases of population size, but also environmental change and climate change. So, it is a major, challenging time to be in agricultural research, but clearly there is an enormous opportunity there. At every level of government—Wales, the UK, Europe, worldwide—I think that people recognise the challenge for that, and the opportunities. Certainly at local level, that agriculture is being seen as an important part of industry, and recognised not just as a problem, but as part of the solution, both in terms of agricultural output and environmental provision.

[5] **Lord Elis-Thomas:** Thank you for those opening statements. As far as we are concerned, you are obviously challenging us to come up with a report that will respond to your vision, and hearing the great name of Stapleton mentioned in the current context is a signal to everyone that this is a serious opportunity that we have to respond to as politicians.

[6] Pwy sydd am gychwyn?

Who wants to start?

[7] We will start with Julie.

[8] **Julie Morgan:** I just wondered, Jamie, whether you could expand on what you said about exporting innovation, and that it is very important that we are able to apply the techniques that we develop here in Wales. I wondered if you could give any examples of

where that has not happened, and what you would like us to be doing to enable it to happen.

[9] **Professor Newbold:** An example is by far the easiest way to do it. There was the climate use document about Welsh agriculture, and how we remove emissions. It had many sensible suggestions. One of the things that has come out of the research in Aberystwyth is the generation of a new set of grass varieties called high-sugar grasses, which, when fed to ruminants, reduce emissions of greenhouse gases by about 20% to 25%. That has been taken up by Asda and its supply chain in the south of England. Why was that not one of the key opportunities to reduce emissions in Wales? We are generating that technology in the country, and although it is used, we do not seem to drive our technologies forward.

10:15

[10] **Julie Morgan:** What do you think could be done to ensure that that technology is taken up?

[11] **Professor Newbold:** We need to have a much closer linkage between research at the cutting edge and getting it to and explaining it to our farmers. We need demonstration farms that, bluntly, do not demonstrate best practice today, but demonstrate best practice in 2030. As a committee, one of the things that I would ask you to look at, if you have the time, is some of the plans that southern Ireland has in this area about future farms. There is a lesson for us to learn about trying to show our farmers where they should be in 20 years' time, not where they should have been last year.

[12] **Julie Morgan:** Could you say quickly what happens in southern Ireland?

[13] **Professor Newbold:** Southern Ireland, together with Northern Ireland and IBERS, is in discussion and has entered into the Farm 2030 plan, which is to convert farms into visions as to how agriculture will look in 2030, and to make those available as demonstration units, demonstrating technologies at that cutting edge.

[14] **Llyr Gruffydd:** Yn amlwg, mae gwasanaethau ecosystemau yn rhan ganolog o'r weledigaeth pan mae'n dod i reoli tir yn gynaliadwy. Yn eich papur, roeddwn yn nodi eich bod yn sôn bod angen ehangu ar y diffiniad presennol o wasanaethau ecosystemau a symud i beth rydych yn ei ddisgrifio fel '*a more systems-based view*'. Byddwn yn falch pe baech yn gallu ymhelaethu ychydig ar hynny er mwyn i ni ddeall yn well yn union beth rydych yn feddwl.

Llyr Gruffydd: Obviously, ecosystems services are an essential part of the vision when it comes to sustainable land management. In your paper, I noted that you mentioned that there needs to be an expansion of the current definition of ecosystems services and a move to what you describe as '*a more systems-based view*'. I would be grateful if you could expand on that a little, so that we can understand better what you mean.

[15] **Professor Donnison:** I guess that on ecosystems services we are talking about expanding beyond the normal production side of potentially food, energy and the much broader impacts in terms of water and air quality, and also in terms of the way that we can put values on those. Clearly, again, it is something like the Stern report that we had on climate change, we need to have mechanisms by which we can put economic value on these and understand all of the benefits that we get from land. So, it is basically about understanding how we get those benefits, how we put value on those benefits, how we monitor those benefits and how we put those through to the system. That is part of the main thing that we think is achieved. It is getting those balances right, understanding the tensions between those benefits and how we get the maximum overall outputs. So, it is how we deal with the trade-offs and understanding those trade-offs, so that we say, 'Maybe we'll take a 5% reduction in

yield because we get a 50% improvement in water retention, or whatever’.

[16] **Professor Newbold:** Technology has the ability to change where those trade-offs will come. I realise that you will be listening later today to some of my colleagues, including Mike Humphreys, so he will tell you the detail. Effectively, Mike and his colleagues are now developing grasses that have a rooting structure that give far improved drainage and far improved carbon capture below ground, while giving the advantage that I was talking about of high sugars and productivity above ground. The traditional boundaries are moving as we learn how to do different things with our plants and animals.

[17] **Llyr Gruffydd:** It is about applying it on a scale, is it not? A huge cultural change also needs to happen in the mindset of landowners and people who work the land to be able to apply that. You mentioned payment for ecosystems services. To what extent do they have to be monetised for them to become a reality at a scale that can make a significant difference?

[18] **Professor Donnison:** Personally, I think that it does; we need to find ways of putting economic values on these things. That is what tends to drive a lot of the decisions. For many of the things that we currently do—fossil fuels would be a classic example—we do not pay their true cost because we do not put their true value on them. The price that we pay, whether it is at the pump or when we turn a switch on, means that we are not paying its true value when it is derived from fossil fuels. We need to get much better at that. There is clearly starting to be more people who are getting engaged in how you put value on these things, which are normally very difficult to put values on. So, it can be done, and I think that that will be really important for agriculture and getting those benefits to the people who are generally providing those provisions for that.

[19] **Joyce Watson:** I would like your views on how the sustainable intensification of agriculture and sustainable land management can fit together.

[20] **Professor Newbold:** The very definition of sustainable agriculture is producing more from less while not doing any damage. I think that that will require a more spatial view of the way that we do things. Some pieces of land will be appropriate to improve production on and some probably should be taken out of production. It will be about making sure that we have the models that allow that to occur. So, where production is possible with limited damage, or where we can mitigate that damage through technology, we should do it. I think that we do have to accept that there is some land that really should not be particularly productive.

[21] **Joyce Watson:** Would you like to give an example? You said that examples are always the best way of understanding something.

[22] **Professor Newbold:** As I said, I think that, with the new grass varieties, we can go higher up the hill in terms of animal production—we can open up new areas to productive agriculture. I will let my colleague talk a little bit about biofuels in a minute, but there are clearly some lands where production would not be appropriate. We have recently taken over the lease at Pwllpeiran, where there is some land that is bog land and it is very suitable for carbon capture, but I am not sure that putting Welsh Black cattle on it would be the best thing to do. It is about doing it where technology can improve productivity and not doing it where technology cannot help. Do you want to say something about that?

[23] **Professor Donnison:** Yes. I guess that one of the ways that we also need to start thinking about is the new forms of rotation that we can put into agriculture—and, again, particularly into some of the areas like the uplands—so that we can consider having rotations that go over many years where we have periods of fallow and periods, in effect, of biomass removal, which we can use to make renewable energy materials. We can then have quite intensive grazing periods and then move back. If we are doing that across a landscape, it

means that we are managing quite large areas of landscape highly productively by comparison with what we are doing now in terms of getting outputs in terms of livestock, energy materials and landscape and biodiversity.

[24] **Julie James:** Following on from that, in your paper you talk quite a bit about zoning and how you would manage biosecurity and ecosystems in a zoned approach. Tell me a little bit more about how you think that that would work and how we might practically set about setting up such zones.

[25] **Professor Newbold:** I can answer. I am a livestock scientist, I am afraid. This is a document by a lot of colleagues, but I will answer on that. As I say, I think that we can zone certain areas where, currently, the grass that is grown is producing very little in the way of livestock products. There are new grasses, and I mentioned high-sugar grasses, but we now have a generation of high-fat grasses. Fat has a lot more calories than sugar, as you will know. That can be zoned, but it should not be planted everywhere. There will be fields where it is appropriate for us to do that, and on which it is appropriate to bring larger ruminant livestock, which can be productive far higher up the land than they are currently. However, you cannot do it everywhere. It would be madness to plant those in bogs, for instance.

[26] **Julie James:** So, how, practically, would you set about having a system in place that prohibited farmers from doing things? I am just interested in how you think that that process would work.

[27] **Professor Newbold:** Coming back to the monetisation question, I am actually far more interested in systems that farmers will adopt because they will make more money. It comes back to true demonstration farms of future technology. I believe that our farmers are not stupid: if there are technologies that they can use that will make them more money, they will use them. However, we have to get them out in front of them so that they can make the choice at the time—

[28] **Julie James:** So, you are talking about—this is a link in with your demonstration farms, which you were talking about as well. I am always very interested in how we can practically move something forward. So, you obviously have to have a hearts-and-minds buy-in; none of this can be done except by consensus. What would be the first steps that you would like to see the Government put in place?

[29] **Professor Newbold:** I am not sure that I can answer for the Government. I can answer for myself as a scientist—

[30] **Julie James:** What can we as a committee do to persuade—

[31] **Lord Elis-Thomas:** I invite you to tell the Government what you think that it should do, and we will convey the message—no problem.

[32] **Professor Newbold:** I will say what I think that I should do, and then I will leave it to you to see how you can help us. [*Laughter.*] I think that we have to move science from the laboratory. We have a tendency of waiting until we are finished before we try to disseminate it. I think that, if we take farmers on the journey with us, they will take the technology up much earlier. We, as scientists, and you, as a committee, need to help us find ways in which we can show people as the products are developed, and actually get the farmers' buy-in. There is a problem with scientists; we tend to sit in our labs in white coats and do strange things. We need feedback from the industry as well. So, we need a much more connected science and farming community, so that we are developing these solutions in real time with the people who are going to use them. That will guarantee that they use them; it will also guarantee that we get the right solutions. As to how you, as a committee, can help us to do

that, I am afraid I—

[33] **Julie James:** What we have all been watching recently are the issues with the floods on the Somerset levels and the arguments about dredging and so on. There is an escalating argument going on in England around whether it is the way that maize production has been allowed to take place in the surrounding area with the removal of the topsoil from the land as a result and so on that has caused it. It is that dichotomy between the maize producers wanting that profit and the long-term effects on the landscape that we are trying to get our heads around here, is it not, really?

[34] **Professor Newbold:** Again, by way of example, one of my colleagues, Christina Marley, has been looking at drainage and how quickly land drains. Clovers and legumes allow very quick water penetration. At the same time, there is a real benefit to farmers because they are not having to bring protein onto their farms and yet they are getting better drainage and clearing water from the landscapes quicker. Sorry, I am a bit like a broken record, but let us get that happening—let us not wait until we have finished it and published it.

[35] **Professor Donnison:** I guess that there is a joint risk there, of course, because, clearly, we are trying to take ideas out of universities and get them deployed early. So, there is a risk for us in terms of being embarrassed by things not working, and there is obviously a risk for farming. However, probably, the alternative risk of not taking up these technologies or knowledge fast enough is greater. Clearly, again, whatever the causes, the climate change and so on that we are seeing at the moment are going to create more and more challenges, I think.

[36] **Julie James:** Yes. It is a bit of a worry that having a rational conversation about it seems rather difficult in the current climate as well. That is alarming for those of us who would like to see it solved. Thank you, Chair.

[37] **Mick Antoniw:** I do not want to be a luddite on this, although I am probably going to say something along those lines, but one of the things that concern me is that a lot of this just seems incredibly unnatural. It is about the intensification of farming—getting more out of less, maximising profit, and I understand that people are working and want to maximise the profit that they can get out of it, but we are talking about replacing grasses or whole new systems and ecosystems. You get into the whole argument that we have seen around genetic modification of plants and so on and different forms of livestock and so on. What is the ethical framework for all of this? What is there to set the parameters to ensure that this all balances and at least has some sort of ethical balance to it?

[38] **Professor Newbold:** I will throw it back at you, then. What is more ethical: a cow raised on grass on a hill or a cow shoved in a barn, never seeing any daylight?

[39] **Mick Antoniw:** I understand that, but part of what we are talking about, if we are talking about intensification and so on, is that, equally, it can go the other way. There are all sorts of other ways of intensively farming and increasing profits and so on and using this. We can have a positive example in terms of how we reduce emissions and so on, but we then get the arguments around the intensive production of milk and so on, which is about maximising product. Should there be a clearer framework in terms of sustainability or whatever, or is this a free-for-all?

10:30

[40] **Professor Newbold:** I will go off script and give you my own opinion, if you do not mind. I have real problems with intensification where we are feeding livestock with feed that

we should be feeding to people. As the population grows, I think that that is morally irresponsible. In the uplands, the higher land, we cannot grow food that you and I can eat, but we can grow things that can be converted into food that you and I can eat. I think that that is what we should be doing.

[41] Coming on to your point about genetic modification, none of this is GM. None of what we have talked about is GM. Again, my colleagues will explain the details, but this is traditional plant breeding.

[42] **Mick Antoniw:** So, we should be talking about this, certainly within—. You have to achieve very clear objectives in terms of climate, in terms of sustainability, in terms of, environmentally, I suppose, ethics and so on. Does that mean that we should be looking at a clearer framework within which we encourage and develop this, because I am concerned about the focus on intensification, but not necessarily on the type of intensification—?

[43] **Professor Newbold:** I totally agree. I think that there does need to be a discussion. I do not think that all greenhouse gases should be treated the same. I think that where the greenhouse gases are produced by a system that is sacrificing human edible food—I would argue that in the chicken industry and, to a lesser extent, the pig industry, we are putting feed in that we could eat ourselves—they are unnecessary. When you come into ruminant agriculture, the conversion efficiency in a grazing animal is such that we get 700% more human edible energy out than we put in. I do not think that those greenhouse gases are as bad. I also think that there are technical solutions to reducing them, but, with a chicken, you get about half of the human edible energy out that you put in. You are throwing away half the food. So, I think that we need to have a serious discussion about what ‘sustainability’ means.

[44] **Professor Donnison:** I guess that, on top of that, in terms of what it means, we need to have mechanisms and metrics for being able to value those and understand what sustainability is and what it means in different sectors, different parts of agriculture and different industries and so on as well. Again, putting values on these is going to be an important part of the future and, clearly, is going to be an important part of export industries—the exporting and importing of products and understanding how we can equate agricultural products from Wales with those from other parts of Europe and beyond.

[45] **Mick Antoniw:** Does that lead us, also, to the fact that, probably, there is a need for clearer cross-European guidelines, directives or, I suppose, information exchange in some way over that, so that you are not competing with different areas under different systems?

[46] **Professor Newbold:** I certainly agree on information exchange. I think that we have to be aware that conditions are different in different European countries. So, again, this is more your work than ours in terms of regulations. I think that we should just be aware that they are different and we have a situation where we live in a relatively wet, relatively mountainous climate within Wales. Our land has certain uses; we are not going to grow much maize.

[47] **Lord Elis-Thomas:** So, you have no difficulty in giving us a practical definition of sustainable intensification and what it could mean, because we have encountered some arguments about the way that these terms are used and, as someone who was merely trained in the humanities, both at Bangor and at Aberystwyth, at the national library here, I am always concerned about the failure of people to develop policy because they prefer to argue about definitions.

[48] **Professor Newbold:** I think that Pete Smith from Aberdeen has given by far the best definition. I will happily send it, but I will try to remember it. In Pete’s definition, it is using the land to meet the requirements that we have in a way that does not damage the ability of

future generations to meet their needs, and I find that an easy-to-understand definition.

[49] **Lord Elis-Thomas:** Clearly, you are in agreement with that definition, Iain.

[50] **Professor Donnison:** Yes.

[51] **Llyr Gruffydd:** I just want to pick up on another thing that you say in the paper that has been submitted. Obviously, you talk about greater financial incentives for the uptake of better land management practices, but also you talk about paying for negative consequences, and say that the cost of mitigating adverse consequences should be borne by 'the sector', which I presume means the agricultural sector, or the land sector, rather than by other private or public sectors. Could you maybe just elaborate a bit on how that would look and what that would mean over and above the current regulations that we have around the environment? Or is just a principle?

[52] **Professor Donnison:** It is a principle, but it comes back to the fact that, once you can start measuring things, in that you have your metrics, and a way of assigning a value to the outputs, you can then consider the balance of the positives and the negatives that are coming from a particular enterprise, and so on. You are then obviously rewarding those outputs that society wants most, and discouraging those that it wants least.

[53] **Llyr Gruffydd:** So, we are looking potentially at a model that would not just reward or pay for ecosystems services, but actually could vary according to the quality of the service that is being provided.

[54] **Professor Donnison:** Yes. We have used the model of people growing maize. There, there would be big costs that you would have to pay as an enterprise for the negative consequences.

[55] **Professor Newbold:** By way of example, I spent the earlier part of the week in Switzerland, which is very close to being able to have a carbon credit associated with reductions in emissions from agriculture. That is now starting to drive behavioural change, because there is a financial cost and an opportunity from making a change. People do not like changing; they have to have a reason.

[56] **Llyr Gruffydd:** Talking of change, you might be familiar with the Kevin Roberts review into the resilience of the industry, which was recently published. There are some quite challenging recommendations there for the industry. Are there any aspects of that that you think might—

[57] **Professor Newbold:** I apologise, I am not aware of it.

[58] **Llyr Gruffydd:** That is fine. Maybe some of the other people here today might be able to pick up on that. Thanks.

[59] **Lord Elis-Thomas:** While we are asking for your views on documents, there is this one. I am not going to ask for your views today, because it has only been out for three days.

[60] **Professor Newbold:** I have not got the right glasses on, so all I can see is a white and red paper.

[61] **Lord Elis-Thomas:** There is also the document on the common agricultural policy and the rural development plan. Of course, we are so effective in the National Assembly that we have already debated this, or had an initial debate on it, yesterday, led by Llyr here, but I would be interested to hear your view, when you have had an opportunity to look at this,

because it is out to public consultation. It would be good if you were to take part in that consultation, and you can do it through us, or directly through the Government—however you like—but it would be good to have your considered view on this. In particular, I would point out the percentage that is set out for spend on innovation and distribution of knowledge, which is 11%—that is £105 million—for human and social capital measures, including knowledge transfer, innovation and so on. It seems to me that that does provide a substantial opportunity for yourselves and for the kind of programmes that you—

[62] **Julie James:** May I add to that? In terms of policy documents, and the zoning point that we were making, we are also the committee that looks at the planning Bill that is currently going through, and that has some proposals in it for national spatial frameworks and planning. I am trying to get as wide a sector as possible to look at that as well, so I think, again, it would be very useful to have your view as to how that might fit into the zoning proposals and catchment area planning proposals, which I think are essential.

[63] **Lord Elis-Thomas:** You are getting me very excited now, because I never stop saying that I live in Snowdonia, and have done all my life, because there is such a close synergy there between sustainable, intensive livestock farming on those hills and the environmental benefit for visitors, walkers and climbers on those hills, and the tourism benefit. There is win-win all round, would you not agree?

[64] **Professor Newbold:** I certainly agree it is win-win, and into that mix I would also add the ability to produce fuels, and high-value chemicals from biomass. One of the things that I think is regrettable is that that has entered the public debate as a competition between animals and biofuels, and that is wrong. There is a place for both, and, as Iain said, with intelligent rotations, both can occur on the same land to benefit.

[65] **Professor Dennison:** Another thing with that, particularly if we think of some of the more novel outputs that we may be able to get from agriculture, is that the benefits will not just be to those in the agricultural communities, but will be throughout the whole of Wales in terms of potentially regenerating manufacturing based, in effect, on natural products. Part of that will replace fossil fuels, but, more broadly, it will be about identifying new materials and new polymers. The sectors that are recognised as growing, even currently in the economy, are these newer sectors in terms of things such as industrial biotechnology. The feedstocks for those have to come from agriculture, which could provide a major opportunity, not only for those in rural communities but also for those in town and cities.

[66] **Lord Elis-Thomas:** May I ask about your response so far to the activities of Natural Resources Wales, and although we are not part of its parentage, we are certainly the godparents in this committee? [*Laughter.*] We went with it through the business case and then the regulations. I know that you expressed concern in your paper about the emphasis on river catchment not leading to a properly integrated approach on hilltops, mountaintops, through the various river valleys, and so on. You have a positive relationship, obviously, with that body, but do you have certain issues that you would want it to pursue more effectively or more radically?

[67] **Professor Newbold:** I think that you are quite correct: we have a positive relationship and we are engaged in dialogue with that body. As it becomes more centred, that dialogue can be more constructive. I think that we will argue our own points quite strongly, as you might expect.

[68] **Lord Elis-Thomas:** In terms of what you said about biofuels and no competition between tree planting and livestock, for example, and working together in partnership, that is obviously something that it can do very positively now because it is the forestry agency in the public sector.

[69] **Professor Newbold:** It is about more than simply trees; it is about elephant grass and the use of biomass from conservation areas that are not being grazed for perfectly good reasons. They can still be productive because the biomass can still be used. We had interactions with the predecessor of NRW in that sense.

[70] **Professor Dennison:** Yes, we worked with the Countryside Council for Wales previously, but also with the Royal Society for the Protection of Birds and other landowners about how you can manage land to make conservation pounds go further by getting positive outputs from what is otherwise waste material that is removed from these sites as part of conservation management.

[71] **Lord Elis-Thomas:** In the allocation of resources proposed here in the consultation document, there is 60% for area-based measures, which is £572 million over the period of the programme, which includes agri-environment and climate activity, forestry, framework directive work and organic work. So, obviously, there is an opportunity here for substantial resources. I would point out to those people who are still concerned about the transfer between pillar 1 and pillar 2 that the £572 million is more than twice what is allegedly lost in the allocation to pillar 1. I am just saying that for the benefit of my colleagues around the table.

[72] We have taken just over 35 minutes of your time, but are there some further questions?

[73] **Joyce Watson:** There is one burning question from me. I want to take you back to sustainable intensification, and I accept your argument, but there is another side. People are talking about food security and the drive, mostly in the dairy sector, to deliver milk in an intensified environment, which is a very large-scale, single source. You asked—and I agree with what you said—how we marry these two debates together as one. That is really what I was trying to ask you in the very beginning, but I was a bit shy to ask it directly. So, I will be direct now. Farmers want to make money and they say that this is what they believe will make the money in the dairy industry, and you are producing an alternative to that.

10:45

[74] **Professor Newbold:** I do not believe that they are in any way incompatible. We can produce, from Welsh land, forage that has the energy and crops that have the protein to allow levels of milk production at those levels. What we should not be doing is importing cereals and protein sources from north America to do that. There is an absolute madness in that. We can produce milk and we can produce it cost-effectively. It might well be that big milk units have the economy of scale. My problem is not with that; my problem is with importing the feed.

[75] **Lord Elis-Thomas:** I have just one further question related to that. Those of us who have tried to be environmentalists for many years have learnt that it is the extent that the market became an effective driver that brought along lots of the new measures that have been, perhaps, more effective than those in the past. Would you say that that is beginning to happen seriously in the food industry? I know of your relationship with Waitrose, of course, as a customer there, but what about any others?

[76] **Professor Newbold:** I think that we have very usefully found that—initially with Waitrose, but increasingly with Sainsbury's and other producers—a relationship based on those supply chains is very valuable. It helps drive innovation quickly, largely because it de-risks much of the problem for the individual producer. So, we have found that a very useful way of driving innovation and one that I would encourage you to consider, because it allows

the innovation to happen much faster.

[77] **Lord Elis-Thomas:** Thank you very much. Do you have anything further to add, Iain?

[78] **Professor Donnison:** No, I think that that says it all. It is about that opportunity that we have at the moment, where a number of industrial sectors are very interested in engaging with agriculture and thinking about where food and these materials come from and what the benefits are. So, making that connection of working, certainly with retailers, has been quite an important part of that story.

[79] **Lord Elis-Thomas:** Well, I am delighted to pronounce that the spirit of Stapleton is alive and well and with us today. [*Laughter.*] Thank you very much.

10:49

Rheoli Tir yn Gynaliadwy: Tystiolaeth gan Cyswllt Ffermio Sustainable Land Management: Evidence from Farming Connect

[80] **Yr Arglwydd Elis-Thomas:** Nid oes diben imi eich croesawu chi i Aberystwyth, ond mae'n bleser cael eich presenoldeb yn y pwyllgor. Mae gennym ddiddordeb mawr, wrth gwrs, yn y modd y mae Cyswllt Ffermio wedi datblygu, yn enwedig dros y blynyddoedd diwethaf, a rôl arbennig Cyswllt Ffermio i ledu gwybodaeth ynglŷn â rheoli tir yn gynaliadwy.

Lord Elis-Thomas: There is no need for me to welcome you to Aberystwyth, but it is a pleasure to have you here with us in the committee. We have a great deal of interest, of course, in the way that Farming Connect has developed, especially over the past few years, and the particular role of Farming Connect in disseminating information about sustainable land management.

[81] I ddechrau, hoffwn i chi ddisgrifio sut yn union rydych chi'n gweld eich swyddogaeth fel corff, ac ystyried y newid sydd wedi bod yn y ffordd y mae'r gwasanaeth wedi cael ei gyflwyno dros y blynyddoedd diwethaf, a sut ydych chi'n gweld hynny yn gallu bod yn ffordd effeithiol o gysylltu'n uniongyrchol â'r amaethwyr. Rydym yn ddiolchgar iawn am gael cyfle i ddarllen y papur hwn. Rwy'n adnabod rhai o'r cymeriadau sydd ynddo. Rwy'n gwybod eich bod yn gweithio gyda phobl eithaf clyfar. Gary, ai chi sydd i gychwyn?

To begin, I would like you to describe how exactly you see your function as a body, considering the changes that there have been in the way that the service has been introduced over the past few years, and how you see that as an effective way to link up directly with farmers. We are very grateful for the opportunity to read this paper. I recognise some of the characters in it. I understand that you work with quite clever people. Gary, are you going to start?

[82] **Mr Douch:** Diolch yn fawr, Gadeirydd, a diolch am y croeso. Hoffwn ateb yn Saesneg, os gwelwch yn dda.

Mr Douch: Thank you, Chair, and thank you for the welcome. I will answer in English, if I may.

[83] I am responsible for the Farming Connect programme within the Welsh Government—for the policy—and, essentially, in terms of the rural development plan, we have issued two contracts. In the first phase of the RDP we had 17 contracts that covered the programme. The programme is there to support the development of farm businesses in Wales under this RDP, which was born back in 2001, with the concept of bringing together a number of public sector organisations delivering a common goal to support farm and forestry businesses in Wales. Over that period, and under the current programme, numerous fully

funded services, in terms of knowledge transfer or knowledge exchange, are provided to the industry. The programme also supports a range of on-farm services, or what we call one-to-one services, which are subsidised for individual businesses. As the summary update that we submitted in evidence says, there has been strong uptake during this RDP; we have had over 18,000 unique individuals engaging with the programme, and if we look at the total number of engagements with all the fully funded activities, we will see that there have been over 70,000 beneficiaries during that time. There has been strong take-up across Wales, and when we look at the distribution, we will see that there is strong take-up across all regions, which is a result of some of the local facilitation and the support mechanisms that are there to ensure that that happens.

[84] Moving down that page in our evidence, you will see that, in terms of the three specific services, which we call 'subsidised' services, we have supported over 10,000 beneficiaries in terms of skills development. If you combine the advisory components—what we call the farm advisory service and the whole farm plan—you will see that over 4,000 farmers or individual businesses have already claimed support, and over 6,000 have applied. In summary, that gives you a feel for the take-up and engagement across Wales. In 2011, we went out to retender for the programme, and we amalgamated some of what were then smaller contracts with larger contracts, based on some of the evidence that we gathered and the feedback from the industry. We reissued a tender in terms of the three main contracts, which were awarded to Menter a Busnes, which is currently headed by my colleague Eirwen Williams.

[85] **Yr Arglwydd Elis-Thomas:** Felly, y cwestiwn arall yr wyf eisiau ei ofyn yw hwn: a ydych chi'n hyderus y byddwch yn gallu delifro'r hyn sy'n cael ei gynnig yn yr ymgynghoriad ar y cynllun datblygu gwledig, sef y £105 miliwn—nid i chi yn unig, efallai—i'w ddosbarthu? A oes gennych y peirianwaith i allu trosglwyddo'r wybodaeth sy'n arwain y contractau yr ydych wedi eu sefydlu i gyfeiriadau newydd? Gofynnaf i Eirwen ateb ar hynny hefyd, os gaf i.

Lord Elis-Thomas: So, the other question that I want to ask is this: are you confident that you will be able to deliver what is proposed in the consultation on the rural development plan, namely the £105 million—not just for you, perhaps—to be distributed? Do you have the mechanism in place to be able to transfer the knowledge that leads the contracts that you have established in new directions? I ask Eirwen to answer that as well, if I may.

[86] **Mr Douch:** Looking forward with the new RDP, yes, certainly. The current contracts run through to the end of this year, and the intention is to have a seamless transition from these contracts in this RDP to the next. There is an expanded budget and focus in the next programme on knowledge transfer and innovation, which you have rightly identified, and which is in line with the ambition and direction of what the Commission is looking for. That budget line will incorporate proposals for Farming Connect, specifically for the sector, but it will also incorporate knowledge transfer and innovation in broader terms to support the food sector, wider forestry and rural businesses as well.

[87] **Yr Arglwydd Elis-Thomas:** Mae gwaith Menter a Busnes wedi trawsnewid, yn amlwg, gyda'r contractau newydd hyn i ddatblygu a chysylltu ymhellach gyda'r gynulleidfa sy'n awchu am y wybodaeth hon, gobeithio.

Lord Elis-Thomas: The work of Menter a Busnes has been transformed, obviously, with these new contracts to develop further links with the audience that is desperate for this information, I am sure.

[88] **Ms Williams:** Mae Menter a Busnes yn gweld ei bod yn bwysig bod linc rhwng y prifysgolion, neu le mae'r gwaith ymchwil yn cael ei wneud, a'r ffermwyr. Mae'r rhaglen

Ms Williams: Menter a Busnes sees that it is important that there is a link between the universities, or the research institutions, and the farmers. The knowledge transfer

trosglwyddo gwybodaeth yr ydym wedi ceisio ei datblygu'n seiliedig ar gyfnewid gwybodaeth, *knowledge exchange*, yn hytrach na jest trosglwyddo gwybodaeth. Rydym yn ei gweld yn bwysig bod ffermwyr yn cael cyfle i roi adborth ar beth sy'n digwydd hefyd. Nid oes pwynt gwneud ymchwil os nad yw'n berthnasol i'r ffermwyr a beth maen nhw ei angen er mwyn datblygu eu busnesau yn y dyfodol.

[89] Mae gennym fenter newydd sydd wedi cael ei lansio, sef y gronfa arloesedd ffermwyr. Rydym yn rhoi i fyny at £5,000 i grwpiau o ffermwyr ddod at ei gilydd i roi syniad mewn am rywbeth y byddent yn licio ei dreialu ar ffarm—un ffarm neu fwy nag un ffarm—er mwyn cael gwybod pa fath o brosiectau y mae ffermwyr yn gweld yr angen amdanynt yn y dyfodol.

[90] Rydym wedi bod yn edrych ar y ffordd y mae pobl yn dysgu a'r ffordd y maent yn cymryd gwybodaeth i mewn. Rydym wedi trio dod lan gyda rhaglen o weithgareddau a fyddai'n addas ar gyfer gwahanol ffyrdd o ddysgu. Hynny yw, mae rhai pobl yn licio darllen, felly mae gennym daflenni gwybodaeth i bobl allu edrych ar y wybodaeth sy'n cael ei rhoi. Mae gennym hefyd glipiau fideo ar ein gwefan y gall pobl edrych arnynt yn eu cartrefi. Hefyd, mae gennym grwpiau trafod a ffermydd arddangos—fe gawsoch becyn yn dangos y gwaith sy'n mynd ymlaen ar y ffermydd arddangos a'r diwrnodau agored.

[91] Mae gennym hefyd glybiau busnes lle'r ydym yn gobeithio gwthio'r 5% uchaf o ffermwyr ymlaen i'r cam nesaf. Rydym yn teimlo bod yn rhaid i ni ddatblygu'r bobl ar y top yn ogystal â thrio cael pawb arall i mewn hefyd. Mae gennym ddau glwb busnes ar gyfer cynhyrchwyr defaid ar hyn o bryd, un yn y gogledd ac un yn y de. Yn ogystal â hynny, rydym yn teimlo bod dysgu ymarferol yn mynd i lawr yn dda gyda ffermwyr. Rydym yn cynnal gweithdai lle maent yn cael gweld yn ymarferol bethau fel cloffni anifeiliaid neu beth bynnag. Maent yn cael gweld yn union beth sy'n digwydd ac yn gallu rhoi tro arno hefyd.

[92] O ran y cynlluniau yr ydym wedi'u datblygu, rydym yn trio bod ar draws y

programme we have endeavoured to develop is based on the exchange of information, knowledge exchange, rather than simply knowledge transfer. We believe that it is important that farmers also have an opportunity to give feedback on what is happening. There is no point doing research unless it is going to be relevant to the farmers and their needs in terms of developing their businesses for the future.

We have a new initiative that has been launched, the farmer innovation fund. We will provide up to £5,000 for groups of farmers to come together to propose an idea on something they would like to trial on farm—a single farm or a group of farms—in order to see what sort of projects farmers identify as being required for the future.

We have been looking at the way in which people learn and how they take on board information. We have tried to come up with a programme of activities that would be appropriate for various methods of learning. For example, some people enjoy reading, so we have information pamphlets for people to access the information in that way. We also have video clips on our website that people can look at in the comfort of their own homes. We also have discussion groups and demonstration farms—we sent you information showing the work that goes on at the demonstration farms and on the open days.

We also have business clubs where we hope to push the top 5% of farmers on to the next step. We feel that we need to develop the people at the top as well as drawing people in from below. We have two business clubs for sheep producers at present, one in north Wales and one in south Wales. In addition to that, we believe that practical learning goes down particularly well with farmers. We conduct workshops where they can see, in practice, things such as lameness in livestock. They can see exactly how things are addressed and can have a go.

In terms of the schemes we have developed, we tried to be cross-sectorial and also cross-

sectorau i gyd a hefyd ar draws pob un o'r themâu, fel iechyd a lles anifeiliaid neu newid hinsawdd. Mae newid hinsawdd yn rhywbeth sy'n dod i mewn i bob un o'r gwahanol elfennau. Mae gennym ni daflen ar bwnc *climate change and animal health*. Mae'n bwysig ein bod yn cyfleu negeseuon am yr amgylchedd a newid hinsawdd ym mhob un o'n gweithgareddau ac nad ydym yn ei weld fel pwnc ar ei ben ei hun. Rydym yn teimlo, pe taech yn cynnal cyfarfod i ffermwyr ar newid hinsawdd, mai ychydig iawn o bobl a fyddai'n troi lan i'r cyfarfod hwnnw. Fodd bynnag, trwy ddod ag ef i mewn i'r gweithgareddau eraill sydd gennym, dyna'r ffordd fwyaf effeithiol o gael y neges drosodd i ffermwyr. Mae'n bwysig ei bod yn cael ei chlymu mewn i bob un o'n gweithgareddau.

[93] Rwy'n teimlo bod ffermwyr yn awyddus i ddysgu. Maent yn bobl *keen*, ar y cyfan, sydd am wella eu busnesau. O ran yr amgylchedd a newid hinsawdd, y ffordd orau i gael y neges drosodd yw edrych ar y geiniog ac edrych ar yr ochr ariannol i bethau. Dyna'r ffordd i fod yn fwy effeithiol o ran cynhyrchu.

[94] **Yr Arglwydd Elis-Thomas:** Rwyf wedi cael y fraint o gymryd rhan mewn rhai o weithgareddau'r Academi Amaeth. Welais i ddim criw o ffermwyr ifanc a phobl sy'n ymwneud â'r diwydiant mwy brwdfrydig na mwy penderfynol i ofyn cwestiynau. Mae'r dyfodol yn ddiogel os mai dyna'r math o bobl sydd o gwmpas.

11:00

[95] **Llyr Gruffydd:** Rwyf am bigo lan ar rai o'r sylwadau a wnaethpwyd gan y tystion yn gynharach ynglŷn â'r ffaith bod risg wrth i rai o'r technegau a'r technolegau newydd beidio â chael eu cymryd lan mor gyflym ag y dylent. Mae hynny'n dod yn ôl at rai o'r pethau sydd wedi cael eu dweud yn un neu ddau o'r papurau eraill a gyflwynwyd ar gyfer y sesiwn heddiw ynglŷn â'r her ddemograffig. Nid oes rhaid ond edrych ar y papur hwn a gallwch weld, ar y cyfan, fod oed y ffermwyr sy'n rhan o'r ffermydd arddangos hyn yn iau nag yw proffil cyffredinol y diwydiant efallai; nid wyf yn siŵr. A ydych yn ffeindio bod y *take-up* yn

cutting in terms of the themes, such as animal welfare and health or climate change. Climate change is something that has an impact on each of these elements. We have a factsheet on climate change and animal health. It is important that we convey messages about the environment and climate change in all of our activities, rather than it being a separate issue. We believe that if you were to hold a meeting for farmers on climate change very few would turn up. However, making it relevant to our other activities is the most effective way of conveying that message to farmers. It is important that it is tied into all of our activities.

I believe that farmers are eager to learn. They are eager people, on the whole, who want to see their businesses developed. In terms of the environment and climate change, the best way to convey that message is to look at the pounds and pence and the financial aspect of things. That is the way to encourage efficiency of production.

Lord Elis-Thomas: I have had the privilege of taking part in some of the activities of the Agri Academy. I have never seen a group of young farmers or people involved in the industry more eager or determined to ask questions. The future is safe if they are the kind of people who are around.

Llyr Gruffydd: I want to pick up on some of the comments made by the previous witnesses in relation to the risk that exists as some of the new techniques and technologies are not taken up as quickly as they should be. That comes back to some of the things that have been said in one or two of the other papers that have been submitted for today's session on the demographic challenge. We only have to look at this paper to see that, on the whole, the farmers who are involved in these demonstration farms are younger than the general profile of the industry, perhaps; I am not sure. Do you find that the take-up generally comes from younger groups, or is

dod o grwpiau iau yn gyffredinol neu a yw hynny'n rhy *simplistic*?

that too simplistic?

[96] **Ms Williams:** Buaswn i'n dweud fod gennym lot o grwpiau trafod sydd wedi cael eu sefydlu ers blynyddoedd ac nid y bobl ifanc sy'n mynd i'r rheini. Yn draddodiadol, bydden i'n dweud mai'r tadau neu'r dynion yn y busnes sy'n mynd. Hynny yw, nid yw'r merched yn mynd i'r grwpiau trafod amaethyddol traddodiadol; dim ond perchennog y busnes—y tad, fel arfer—sy'n mynd. Dyna pam yr ydym wedi trio sefydlu grwpiau trafod yn arbennig ar gyfer pobl ifanc. Rydyn hefyd wedi sefydlu'r hyn yr ydym yn ei alw yn 'Merched y Maes', sef grwpiau ar gyfer merched. Rydym ni'n teimlo, er mwyn cael newid i ddigwydd ar fferm, yn aml reit, os ewch chi drwy'r wraig efallai y bydd pethau'n digwydd yn gynt. Nid grwpiau merched ydynt sy'n trafod twristiaeth a gwely a brecwast, neu'n trafod sut mae gwneud y dreth ar werth—rydym ni'n rhio'r un negeseuon o ran iechyd a lles anifeiliaid neu amaethyddiaeth graidd i'r merched fel bod ganddynt yr un lefel o ymwybyddiaeth o bethau technegol ag sydd gan eu partneriaid.

Ms Williams: I would say that we have a lot of discussion groups that have been established for years and it is not the young people that go to those. Traditionally, I would say that it is the fathers or the men in the business who go. That is, the women do not go to the traditional agricultural discussion groups; only the owner of the business—the father, usually—will go. That is why we have tried to establish discussion groups specifically for young people. We have also set up what we call 'Merched y Maes', which are groups for women. We feel that, in order to get change to happen on a farm, quite often, if you go through the female side of the business things may happen sooner. These are not women's groups to hold discussions on tourism and bed and breakfasts, or to discuss how to deal with value added tax—we are trying to convey the same messages on animal health and welfare or core issues of agriculture to women so that they have the same level of awareness of technical issues as their partners.

[97] I fynd yn ôl at y cwestiwn am bobl ifanc, rydym yn teimlo ei bod wastad yn bleser i weithio gyda phobl ifanc. Fe wnaethom ni gynnal cystadleuaeth Menter Ffermwyr—nid wyf yn gwybod a oeddech yn ymwybodol o honno. Roedd gennym chwe thîm o dri o ffermwyr a oedd yn cael *plot* o ddaear lle roeddent yn cael tyfu unrhyw gnwd er mwyn pesgi 50 o ŵyn i weld pwy oedd yn gallu pesgi'r 50 o ŵyn orau. Roeddent yn cael eu marcio ar wahanol griteria. Roedd diddordeb ymysg pobl ifanc eraill yng Nghymru a oedd dilyn hynt a helynt y chwe grŵp, ac roedd hynny'n eithaf calonogol. Rydym eisoes wedi crybwyll yr Academi Amaeth ac mae'r sesiynau olyniaeth—neu'r syrjeris—lle rydym yn rhoi awr am ddim i deuluoedd drafod gyda chyfreithiwr er mwyn trio annog trosglwyddo'r awenau i'r genhedlaeth nesaf. Rydym yn teimlo bod gan bobl ifanc awch i ddod i mewn i amaethyddiaeth ond rydym hefyd yn teimlo bod y cyfleoedd yn brin o ran cael gafael ar dir. Mae hyn yn mynd yn ôl at yr angen am ffermydd i'w rhentu ar gyfer ffermwyr ifanc i roi'r cyfle iddynt ddechrau

To return to the question about young people, we feel that it is always a pleasure to work with young people. We held the Farmer Enterprise competition—I do not know whether you were aware of that. We had six teams of three farmers who were given a plot of land where they were able to grow any crop that they wanted to finish 50 lambs in order to see who could finish the 50 best lambs. They were marked on different criteria. There was interest among other young people in Wales who followed the trials and tribulations of the six groups, and that was quite encouraging. We have already mentioned the Agri Academy and the succession sessions—or surgeries—where we give families an hour free of charge to discuss issues with a lawyer to try to encourage the transfer of the reins to the next generation. We feel that there is a desire among young people to enter into agriculture but we also feel that the opportunities are limited in terms of access to land. This goes back to the issue of farms for rent to give young entrants the opportunity to start farming. We are trying to bring in different

ffermio. Rydym yn trio dod i mewn â gwahanol bethau fel ffermio contract a *share farming* a rhoi gwybodaeth am y math hwnnw o bethau er mwyn gweld a allwn annog mwy o gyfleoedd felly yn y dyfodol. Mae Rhys—rwyf wedi anghofio ei gyfenw—o fferm ym Mhen Llŷn yn un o'r rhai sy'n gwthio'r agwedd hon ar un o'n ffermydd arddangos—Trygarn.

[98] **Llyr Gruffydd:** Yn amlwg, ni fydd byth digon o adnoddau i allu gwneud popeth y mae rhywun am ei wneud. Rwy'n tybio bod y galw am y gwasanaethau yr ydych yn eu darparu yn fwy na'r hyn yr ydych yn gallu cwrdd ag ef—nid yn unig o safbwynt niferoedd pobl ond hefyd o safbwynt faint o amser yr ydych yn gallu ei dreulio gydag unigolion. Mae angen taro cydbwysedd rhwng cyrraedd cynulleidfa eang ond hefyd cyrraedd grwpiau o bobl gyda lefel o wybodaeth a fydd yn rhoi *return* mwy gwerthfawr. A ydych yn ffeindio bod y balans hwnnw'n anodd ei daro?

[99] **Ms Williams:** Mae gennym amrywiaeth o wahanol weithgareddau, sy'n cynnwys digwyddiadau codi ymwybyddiaeth i roi gwybodaeth am, er enghraifft, gynllun Glastir i ffermwyr. Fodd bynnag, wrth fynd i lawr yn ddyfnach, rydym yn ffeindio bod grwpiau bach yn haws o ran sicrhau bod pethau gwahanol yn digwydd ar y ffarm a bod newid yn cael ei weithredu ar y ffarm.

[100] Mae un enghraifft yn y papur o'r gwaith yr ydym wedi bod yn ei wneud o gwmpas yr afon Olwy yng Ngwent. Rydym wedi gweithio gyda'r grŵp yno a chael Cyfoeth Naturiol Cymru yn rhan o'r peth hefyd, ond, pe na bai'r hwylusydd lleol wedi bod yn gweithio gyda'r grŵp, ni fyddem wedi cael y ffermwyr hynny i gymryd rhan, achos pan fyddwch yn dweud bod NRW yn mynd i fod yn rhan o'r peth, maent yn poeni am gael eu cosbi. Felly, mae'n rhaid ichi gael ymddiriedaeth y bobl, rwy'n teimlo, o ran gweithio gyda nhw a'u bod yn ymddiried yn och chi ac yn gweld eich bod chi am wneud rhywbeth er mwyn gwella eu busnesau nhw a gwella safon y dŵr yn yr afon ar yr un pryd.

[101] **Yr Arglwydd Elis-Thomas:** Rydych

things like contract farming and share farming and to provide information about those kind of things to see whether we can encourage more such opportunities in the future. Rhys—I have forgotten his surname—from a farm in the Llŷn peninsula is one of the people who are pushing this aspect on one of our demonstration farms—Trygarn.

Llyr Gruffydd: Obviously, there will never be enough resources to be able to do everything that you want to do. I assume that the demand for the services that you provide is greater than you can meet—from the point of view of not only the numbers of people, but how much time you can spend with individuals. We need to strike a balance between reaching a wide audience and also reaching groups of people with a level of knowledge that will give a more valuable return. Do you find that that balance is hard to strike?

Ms Williams: We have a variety of different activities in place, which include some awareness-raising events that provide information about things such as the Glastir scheme to farmers. However, when we dig deeper, we find that small groups are easier to deal with in terms of ensuring that different things are happening on the farms and ensuring that change is actually implemented there.

There is an example in the paper of the work that we have been doing around the Olway river in Gwent. We have worked with the group there, along with NRW also, but, without the local facilitator working with that group, we would not have got those local farmers to take part, because once you say that NRW is going to be part of it, they worry that they will be penalised in some way. So, you need to gain the trust of the people, I feel, in terms of working with them and that they develop that trust in you and believe that you want to do something in order to improve their business and improve the water quality in the river simultaneously.

Lord Elis-Thomas: You have mentioned

chi wedi dweud rhywbeth sydd wedi bod ar fy meddwl i lot, sef y busnes hwn o reoleiddio wedi'i gyferbynnu â hyrwyddo. Mae hynny'n gyffredinol, mewn gwirionedd, mewn sawl maes polisi, ond yn y dyddiau da gynt, cyn i'r Llywodraeth ei gymryd i mewn, yr oedd y cyngor cefn gwlad yn talu am gynlluniau amaeth-amgylcheddol yn uniongyrchol i'r cynhyrchwyr, ac yr wyf i, yng nghyd-destun talu arian da am waith ecosystemau, wedi bod yn meddwl efallai y byddai'n dda o beth i osod y cyfrifoldeb am hynny ar Gyfoeth Naturiol Cymru. Nid wyf yn gofyn i chi roi eich barn am hynny, oherwydd efallai y byddai braidd yn anodd i chi fel contractwr, ac yn sicr nid wyf yn gofyn i Gary roi barn fel swyddog. Fodd bynnag, mae'n rhywbeth efallai y dylem ni fod yn ei ystyried.

[102] **Ms Williams:** Buaswn i'n meddwl ei fod yn werth ei ystyried, achos mae lot o ganmol wedi bod i gynlluniau'r cyngor cefn gwlad yn y gorffennol. Yr unig beth nad wyf yn siŵr ohono yw a gafodd effaith hynny ar yr amgylchedd, a'r canlyniadau o ran yr amgylchedd, y dirwedd a sut rydym ni'n gweld Cymru ar hyn o bryd, ei fesur.

[103] **Yr Arglwydd Elis-Thomas:** Mae'r parciau cenedlaethol wedi bod yn gwneud cynlluniau amaeth-amgylcheddol yn rhan o hynny hefyd, felly efallai ei fod yn werth edrych ar hynny.

[104] **Ms Williams:** Ydy. Er mwyn cael y balans rhwng cynhyrchu bwyd a gofalu am yr amgylchedd, rwy'n meddwl bod angen rhyw fath o *incentive* ariannol ar ffermwyr o ran edrych ar ôl yr amgylchedd achos mae'n anodd iawn i gael yr arian hwnnw yn ôl drwy werthu'r cynnyrch. Mae'r cwsmer yn ymwybodol bod yr amgylchedd yn bwysig ond pan mae'n dod i dalu am hynny a'r pris ar becyn o gig oen, nid yw wastad yn trosglwyddo, nac ydyw? Efallai fod yr awydd yno ond, ar ddiwedd y dydd, y geiniog sy'n bwysig i'r cwsmer ac efallai nad yw'n trosglwyddo i hynny.

[105] **Yr Arglwydd Elis-Thomas:** Diolch yn fawr.

something that has been on my mind a great deal, and that is this business of regulation in contrast with promotion. That is a general matter, in truth, in several policy areas, but in the good old days, previously, before the Government took it in house, CCW paid producers directly for agri-environment schemes, and, in the context of paying good money for ecosystems work, I have been thinking that perhaps it would be a good thing to place the responsibility for that on NRW. I am not asking you to express your view on that, because perhaps it would be difficult for you as a contractor, and I certainly am not asking Gary to give his opinion as an official. However, it is something that perhaps we should be considering.

Ms Williams: I would think that it would be worth considering, because there has been a great deal of praise for the schemes of the countryside council in the past. The only thing that I am not certain of is whether its impact on the environment, and the outcomes in terms of the environment, the landscape and how we see Wales at present, was measured.

Lord Elis-Thomas: The national parks have also been doing agri-environment schemes as part of that, therefore it may be worth looking at them.

Ms Williams: Yes. To get that balance between food production and looking after the environment, I think that there needs to be some sort of financial incentive for farmers in terms of looking after the environment, because it is very difficult to recoup that money by selling the produce. The customer is aware that the environment is important, but when it comes to paying for that in the price on a packet of lamb, it does not always translate, does it? The desire might well be there but, at the end of the day, the customer wants to look after the pennies, and perhaps that does not translate quite as easily.

Lord Elis-Thomas: Thank you.

[106] We will now turn to Julie Morgan, Julie James and Joyce Watson.

[107] **Julie Morgan:** Thank you very much. I was interested in what you said in your response to Llyr about the involvement of women, and you referred to the groups that you have set up for women. How extensive is that? How many groups do you have and how widely do you involve women in this way?

[108] **Ms Williams:** Mae gennym, ar hyn o bryd, hwyluswyr lleol sy'n gweithio ar draws Cymru. Mae'r rhain yn cyfateb i 15 o hwyluswyr, ond mae rhai ohonynt yn cyfro dwy ardal, gan weithio yn llawn amser. Mae gan bob un o'r rheini dargedau ar gyfer faint o grwpiau merched y maent angen eu sefydlu. Ar hyn o bryd, buaswn i'n dweud bod gennym tua 30 o grwpiau merched ar draws Cymru.

Ms Williams: We have, at present, local facilitators who work across Wales. These equate to 15 facilitators, but some of them cover two areas and work full time. Each and every one of those has particular targets in terms of the number of women's groups that they need to establish. At present, I believe that we have about 30 women's groups across Wales.

[109] **Julie Morgan:** Do you plan to have many more? Is the involvement of women growing?

[110] **Ms Williams:** Ydy. Ni fyddwn i'n dweud ei fod yn un o'r pethau hawsaf, oherwydd buaswn i'n dadlau bod cymaint o bwysau ar y wraig ffarm—os gallaf ei galw'n 'wraig ffarm'—achos, fel arfer, yn ogystal â helpu gyda busnes y fferm, bydd ganddi swydd oddi ar y ffarm, mae'n gofalu ar ôl y plant ac mae gweithgareddau gyda'r nos. Nid yw'n hawdd neilltuo amser i gael y gwragedd at ei gilydd, felly rydym ni'n trio bod yn hyblyg a chael yr amser gorau ar gyfer grŵp mewn ardal benodol. Rydym ni'n gobeithio y byddwn eleni yn gallu cynnal digwyddiad Cymru gyfan, fel rhyw fath o gynhadledd ar gyfer merched mewn amaeth. Rydym wedi dechrau trafodaethau yn barod ynglŷn â gwneud rhywbeth felly. Yn ogystal â hynny, wrth gwrs, ni ddylem beidio â dweud bod croeso i ferched ddod i unrhyw ddigwyddiad, o'r ffermydd arddangos i'r grwpiau trafod, neu beth bynnag, ond rydym yn targedu'r merched drwy'r rhaglen Merched y Maes.

Ms Williams: Yes. I would not say that it is one of the easiest things to do, because I would argue that there is so much pressure on the farm wife—if I can use that term—because usually, in addition to helping with the farm business, she will have an off-farm job, she will care for the children and there will be activities in the evening. So, it is not easy to find time to get those women together, so we are trying to be flexible and to identify the time that best suits the group in a particular area. We hope, this year, to have an all-Wales event, such as some sort of conference for women in agriculture. We have already started discussions on that sort of initiative. In addition to that, of course, we should say that women are welcome to attend all of our events, from our demonstration farms to the discussion groups, but we do target it through the Merched y Maes programme.

[111] **Julie Morgan:** So, is it mainly men who come to the events?

[112] **Ms Williams:** Buaswn i'n dweud felly. O ran y diwrnodau agored ac o ran y grwpiau trafod, yn draddodiadol y dynion sydd wedi dod, er bod gennym enghreifftiau fel arall, wrth gwrs.

Ms Williams: I would say so. In terms of the open days and the discussion groups, it is traditionally the men who attend, although there are exceptions, of course.

[113] **Julie Morgan:** We have also talked about young farmers, but what about the farmers who are hard to reach—those who do not traditionally get involved? How do you try to make contact there?

[114] **Ms Williams:** Rydym wedi gwneud astudiaeth o ran y bobl nad ydynt wedi bod yn rhan o gynllun Cyswllt Ffermio hyd yn hyn. Mae'r astudiaeth wedi dangos eu bod nhw fel arfer yn hŷn, yn bobl nad ydynt yn *IT literate*, a nid ydynt fel arfer yn ffermio mewn partneriaeth, maent ar ben eu hunain, felly nid oes ganddynt amser, efallai, i ddod i gyfarfodydd. Maent hefyd efallai â gwaith oddi ar y fferm, ac nid ydynt yn gweld ffermio fel eu prif incwm o ran cynnal bywoliaeth. Yr hyn yr ydym wedi ei wneud er mwyn cael y rheini i ddod yw defnyddio'r tîm o bobl sydd gennym ar y ddaear ac sy'n adnabod y bobl i drio eu perswadio i ddod, ond, yn fwy na hynny, rydym wedi cael nifer o eitemau ar raglen *Ffermio* ar S4C, gan obeithio y bydd pobl nad ydynt yn mynd i gyfarfodydd yn gallu edrych ar rywbeth fel *Ffermio* a chael y negeseuon. Rydym yn cynnal pedwar cyfarfod o'r grŵp adborth ffermwyr bob chwarter, lle yr ydym yn derbyn adborth wrth ffermwyr ar ein digwyddiadau. Cawsom gyfarfod yn ddiweddar yn Llandrindod, mewn ardal sydd yn draddodiadol heb lot o siaradwyr Cymraeg. Nid oedd un o'r rhai a oedd o gwmpas y bwrdd yn siarad Cymraeg, ond roedd pob un ohonynt wedi gweld y rhaglen *Ffermio*—roeddent yn edrych ar yr is-deitlau. Felly, rydym yn teimlo ein bod cyrraedd y gynulleidfa drwy ffyrdd felly. Yn ogystal, mae gennym erthyglau cyson yn y *Farmers Weekly* a'r *Farmers Guardian*—y math o beth y byddai'r ffermwyr hynny efallai yn eu darllen.

Ms Williams: We have carried out a study of the people who have not been engaged with Farming Connect to date. The study has demonstrated that they are usually older, are not IT literate, and they usually do not farm in partnerships, they are lone farmers, so they do not have, perhaps, the time to attend meetings. They perhaps also have work off-farm, and do not see the farm as their main income in terms of their livelihoods. What we have done to try to engage those people is to use the team of people that we have on the ground who know them individually to urge them to attend, but, in addition to that, we have had a number of items on the *Ffermio* programme on S4C, in the hope that people who do not attend meetings can look at a programme such as *Ffermio* and receive these messages. We hold four meetings of the farmer feedback groups every quarter, where we receive feedback from farmers on the events that we have staged. We had a meeting recently at Llandrindod Wells in an area which is traditionally non-Welsh speaking. None of the people in attendance were Welsh speakers, but each of them had watched *Ffermio* with subtitles. So, we feel that we are reaching the audience through such means. We also have regular articles in the *Farmers Weekly* and the *Farmers Guardian*—the kind of things that those farmers would perhaps look at.

[115] **Julie Morgan:** So, would you say that there is a group that you are not reaching still?

[116] **Ms Williams:** There are still people, yes.

[117] Rwyf yn newid i'r Saesneg yn awr. I am turning to English now.

[118] **Yr Arglwydd Elis-Thomas:** Cewch siarad mewn unrhyw iaith, dim ond inni ei deall hi. Dim ond dwy iaith swyddogol sydd gennym. [*Chwerthin.*]

Lord Elis-Thomas: You can choose any language that we understand. We only have two official languages. [*Laughter.*]

[119] **Ms Williams:** Oes, mae rhai pobl nad ydym yn eu cyrraedd o hyd, a'r nod yw dal i dargedu'r rheini, a thrio annog o hyd. Mae'n anodd mesur, wrth gwrs, pa ddylanwad y mae pethau fel erthyglau yn y wasg yn eu cael ar y bobl nad ydynt yn troi

Ms Williams: Yes, there are some people that we are still failing to reach, but the aim is to continue to target them and to continue to encourage. It is difficult to assess what influence things such as press articles have on those people who do not turn up to our

lan i'r digwyddiadau. Yr unig bobl y gallwn fesur yw'r rhai sydd wedi bod mewn digwyddiad.

events. The only people that we can measure are the people who have signed up to an event.

[120] **Julie Morgan:** Would you say that there is any geographical area that is particularly difficult?

[121] **Ms Williams:** Mae'r map sydd yn y pecyn yn dangos y *coverage* o ran Cymru—mae'n cyfro Cymru. Nid oes un ardal yn benodol; nid yw rhai ffermwyr, efallai, yn gallu dod i ddigwyddiadau.

Ms Williams: The map in your pack shows the coverage in terms of Wales—it covers Wales. There is no specific area; some farmers, perhaps, cannot attend our events.

[122] **Julie Morgan:** Yes, I have seen the map.

[123] **Mr Douch:** Geographically, there is a fairly good and even distribution across Wales in terms of the market penetration. We are seeing a slightly higher take-up in the dairy sector in particular, more so than beef and sheep, which would be understandable. Traditionally there is more engagement with some of the advisory provision in the dairy sector than there is in the beef and sheep sector. In terms of the contracts and the offering, there is a range of services that Eirwen has referred to that we call broad and shallow, which would catch your audience, and the intention was to have a progression. The Chair mentioned the Kevin Roberts review, and one of the recommendations in that review is to have what he has referred to as a tiered approach to knowledge transfer, whereby customers can advance through the offering, and to formalise that in some sort of CPD programme so that there is a recognition for people who have engaged in a range of the activities that are available through the programme.

11:15

[124] **Yr Arglwydd Elis-Thomas:** Os caf ddod yn ôl at Eirwen a Gary ar un cwestiwn, sef y cwestiwn o newydd-ddyfodiaid i amaethyddiaeth, rwy'n sylwi yn y mesurau buddsoddi, sef 15% o'r rhaglen ddatblygu gwledig—mae'r swm hwnnw yn £143 miliwn—mai'r cynnig yw bod olynnydd i'r cynllun cymorth i'r newydd-ddyfodiaid, ac y byddai hwnnw ar gael er mwyn ceisio datblygu mwy o amrywiaeth o bobl yn y diwydiant, a hefyd i hyrwyddo mathau gwahanol o swyddi yn yr ardalodd gwledig. Mae hynny'n eithaf canolog i beth rydych yn ceisio ei wneud, ond yw?

Lord Elis-Thomas: If I may just return to Eirwen and Gary with one question, namely the question of new entrants to agriculture, I note in the investment measures, which are 15% of the rural development programme—that that sum is £143 million—that the proposal is that there should be a successor for the new entrants scheme, and that that would be available to try to develop a greater diversity of people in the industry, and also to promote different types of jobs in the rural areas. That is quite central to what you are trying to achieve, is it?

[125] **Mr Douch:** Ydy.

Mr Douch: Yes.

[126] **Yr Arglwydd Elis-Thomas:** Felly, byddai'n werth i ni fynd ar ôl hwnnw a dweud mai eich barn chi fel gweithredwyr y contract ar hyn o bryd yw bod angen yn y fan hyn er mwyn denu pobl newydd i mewn fel rhan o'r ynni newydd rydym yn chwilio amdano yn y diwydiant.

Lord Elis-Thomas: So, it is worth us pursuing that and saying that your views as the current contract holders is that there is a need here in order to attract new entrants into the industry as part of the new energy that we are seeking within the industry.

[127] **Ms Williams:** Yn sicr, a byddwn yn dweud bod digon o bobl sy'n awyddus i ddod mewn i'r diwydiant; nid oes prinder o bobl ifanc sydd eisiau dod mewn i'r diwydiant. Maent angen dod i mewn, ond maent yn ei chael yn anodd i'w wneud.

Ms Williams: Certainly, and I would say that there are enough people who are eager to come into the industry; there is no lack of young people wanting to come into the industry. They need to come in, but they find it difficult to do so.

[128] **Lord Elis-Thomas:** Sorry, I interrupted you, Julie Morgan. I did not call you, actually. [*Laughter.*] You have finished, have you? Julie James is next.

[129] **Julie James:** My question is on that point, actually. What sort of work do you do with non-farming communities to encourage people to go into those communities? I have a very urban constituency—I represent the middle of Swansea—but I frequently meet people who would be very interested in a career in agriculture or the agri-environment sector who have no hope of understanding how to get into that sector. Do you reach out to people who are not currently involved in that sector?

[130] **Ms Williams:** Mae hwnnw'n gwestiwn da. Mae'n siŵr y byddem yn gallu gwneud mwy. Mae gennym un person sy'n gweithio gyda ni yn Menter a Busnes nad yw'n dod o gefndir ffermio o gwbl, ac wedi dechrau ffermio drwy gymryd ffarm ar rent ac wedi datblygu yn y modd hwnnw. Mae'n un o'r rhai sydd o hyd yn trio cael y neges i bobl nad ydynt yn dod o'r cefndir ffermio. Rydym yn gweithio gyda'r colegau amaethyddol, ac mae rhai o'u myfyrwyr nhw yn dod o gefndir nad yw'n amaethyddol. Mae'r deunyddiau marchnata a'r digwyddiadau yn agored i unrhyw un eu cyrraedd—nid ydym ond yn gwahodd ffermwyr. Mae'r digwyddiadau yn cael eu hysbysebu yn agored mewn papurau lleol ac ar y radio, ac yn y blaen. Felly, mae croeso, ond mae'n bosibl y gallem wneud hyd yn oed mwy. Ni fyddwn yn synnu.

Ms Williams: That is a good question. I am sure that we could do more. We have one person who works with us in Menter a Busnes who comes from a non-farming background, and he started farming through taking a rental farm and has developed in that way. He is one of the people who is always trying to get the message out there to people who do not come from a farming background. We work with the agricultural colleges, and some of their students come from non-agricultural backgrounds. The marketing materials and events are open to anyone—we do not just invite farmers. The events are advertised openly in local papers and on the radio, and so on. So, there is a welcome, but it is possible that we could do even more. I would not be surprised.

[131] **Julie James:** I wondered, for example, whether there is a link to be made between the demonstration farms with some areas of my constituency, which have very deprived primary schools in them. It seems to me that an ideal linkage could be made between those two programmes. I do not know whether that is being done at the moment.

[132] **Ms Williams:** Nid yw'n rhywbeth mae Cyswllt Ffermio yn ei wneud ar hyn o bryd. Yn y gorffennol, rydym wedi wedi bod ar gynlluniau lle rydym yn annog ysgolion i fynd ar ymweliadau. Nid yw hynny yn ffitio mewn i *remit* Cyswllt Ffermio ar hyn o bryd, yn yr ystyr nad ydym yn targedu plant o gwbl fel rhan o'r cynllun. Fodd bynnag, rwyf yn cytuno ei fod yn elfen bwysig iawn i drosglwyddo negeseuon i blant a phobl nad ydynt yn ffermio. Mae pontio'r gagedor rhwng pobl nad ydynt yn ffermio a ffermio

Ms Williams: It is not something that Farming Connect does at present. In the past, we have worked on schemes where we encourage schools to go on visits. That does not fit into Farming Connect's remit at present, in that we do not target children at all as part of the scheme. However, I agree that it is a very important element to transfer messages to children and people who do not farm. Bridging the gap between people who do not farm and farming is very important in order to teach the next generation about how

yn bwysig iawn o ran dysgu'r genhedlaeth nesaf ynglŷn â sut mae bwyd yn cael ei gynhyrchu. Rwy'n gweld hynny yn beth pwysig. Hyd yn oed mewn ardaloedd gwledig, rydym yn dueddol o weld rhyw *gap* rhwng pobl sy'n ffermio a phobl sydd wedi symud mewn i'r ardal. Mae eisiau gwneud rhywbeth i drïo clymu pobl at ei gilydd yn well fel bod gwell dealltwriaeth o ffordd o fyw, o gynhyrchu bwyd ac o ffermio yn gyffredinol.

food is produced. I see that as important. Even in rural areas, we tend to see a gap between the people who farm and the people who have moved into the area. Something needs to be done to bind people together better so that there is a better understanding of the way of life, of food production and of farming in general.

[133] **Julie James:** I was very interested in the ecosystems discussion we were having earlier, and the contribution of farms and agricultural environments generally to that. For town people, that is sometimes the link that makes it real because that is the thing that is affecting their communities. I frequently meet children who could not tell you how a carrot is produced, for example, but who know something about rainfall and so on because of where they live on the top of a hill in Swansea. The RDP talks a little bit about this reach out for knowledge transfer. Is there something that we are missing there?

[134] **Ms Williams:** O ran y ddogfen, nid wyf wedi ei darllen yn ddigon manwl i wybod beth yn union yw'r cynlluniau o ran cyrraedd y bobl hynny, ond rwy'n cytuno bod lle gan ffermwyr i drosglwyddo gwell delwedd o ffermio i bobl ac i drosglwyddo negeseuon ynglŷn â chynhyrchu bwyd er mwyn i bobl ddeall yn well. O ran y cysylltiad hwnnw â'r tir, yn y gorffennol byddai pobl efallai yn cadw mochyn ar waelod yr ardd, ond mae'r cysylltiad hwnnw wedi mynd yn awr. Mae'n bwysig bod ffermwyr yn cymryd perchnogaeth o'u diwydiant a'u bod yn gallu trosglwyddo delwedd dda o amaethyddiaeth i'r cyhoedd.

Ms Williams: In terms of the document, I have not read it in enough detail to know exactly what the plans are in terms of reaching those people, but I agree that there is a place for farmers to transfer a better image of farming to people and to transfer messages in terms of food production so that people understand better. On that link with the land, in the past people kept a pig perhaps at the bottom of the garden, but that link with the land has been lost. It is important that farmers take ownership of their industry and that they can transfer a good image of agriculture to the public.

[135] **Yr Arglwydd Elis-Thomas:** A ydych yn meddwl bod hynny'n rhywbeth y dylem ni ei argymhell ac efallai ei drafod efo'r undebau amaethyddol, ac yn enwedig efo'r ffermwyr ifanc? Rwy'n gwybod y byddent wrth eu boddau yn trafod rhywbeth fel yna.

Lord Elis-Thomas: Do you think that that is something that we should recommend and perhaps discuss with the agriculture unions, and particularly with the young farmers? I know that they would be delighted to discuss such an issue.

[136] **Ms Williams:** Rwy'n meddwl bod y ffermwyr ifanc wedi gwneud tipyn o waith ar hyn yn y gorffennol. Rwy'n meddwl bod diwrnod yn cael ei gynnal bob blwyddyn ar hyn. Roedd un yng Nghaerdydd—yn ôl yn yr hydref, rwy'n meddwl, y cafodd ei gynnal—lle yr aethant â'r wlad i'r dref. Roedd yng nghastell Caerdydd, os rwy'n cofio'n iawn. Byddwn yn meddwl bod y math hwnnw o beth yn eithaf pwysig, a'r cyswllt â'r ysgolion.

Ms Williams: I think that the young farmers have done a great deal of work on this in the past. I think that a day is held every year on this. There was one in Cardiff—it was held back in the autumn, I think—when they took the country to the town, as it were. I believe that it was held in Cardiff castle. I would think that that kind of event was very important, as well as the link with the schools.

[137] **Yr Arglwydd Elis-Thomas:** Diolch yn fawr am hynny. Joyce Watson sydd nesaf.
Lord Elis-Thomas: Thank you for that. Joyce Watson is next.

[138] **Joyce Watson:** I picked up on something that you said earlier on, that, if you were hosting an event and farmers thought that NRW was going to be there, they would not come. I found that to be somewhat disturbing, quite frankly. Would you like to elaborate on that? How could that relationship be improved? It cannot be one-sided; it has to be the two sides that have to meet.

[139] **Ms Williams:** Rwy'n cytuno'n llwyr ac mae Cyswllt Ffermio yn darparu'r linc hwennw rhwng NRW, y mae ffermwyr yn ei weld fel corff o bobl sy'n dod i mewn, a'r ffermwyr sydd efallai yn poeni eu bod wedi gwneud rhywbeth o'i le heb sylweddoli ac yn poeni eu bod yn mynd i gael eu cosbi. Mae lot ohono yn ddi-sail, ond maen nhw'n poeni efallai mai dyna fydd yn digwydd. Felly, rydym ni'n gweld ein hunain fel Cyswllt Ffermio yn darparu'r linc hwennw: rydym yn gallu cael ymddiriedaeth y ffermwyr i gwrdd â phobl. Unwaith mae'r linc wedi ei wneud, mae'n iawn, ond y cyswllt cyntaf yw e i ddatblygu'r berthynas rhwng pobl.

Ms Williams: I agree entirely and Farming Connect provides that link between NRW, which the farmers see as a body of people who come in, and the farmers who may be concerned that they have done something wrong without realising it and are concerned that they are going to be penalised. A lot of it is without foundation, but they are concerned that that may be the case. Therefore, we see ourselves in Farming Connect as providing that link: we can gain the trust of farmers so that they can meet people. Once that link has been made, the problem is solved, but it is that initial contact and developing the relationship between people.

[140] **Joyce Watson:** I would like your views on how sustainable intensification of agriculture can contribute to achieving sustainable land management. Also, I suppose, in a way, drawing from that, what do people think that sustainable intensification means, because maybe that is where the problem is?

[141] **Ms Williams:** Byddwn yn dod yn ôl a dweud, ynglŷn â'r diffiniad o *sustainable intensification*, ei fod yn gallu meddwl gwahanol bethau i wahanol bobl. Mae hwn yn dod yn ôl at bwynt arall: o ran cyfathrebu â ffermwyr, mae'n rhaid i'r negeseuon fod yn glir. Ar y foment, rwy'n teimlo bod negeseuon cymysg yn cael eu cyflwyno weithiau. Os nad yw pobl yn glir ynglŷn â rhywbeth, nid yw'r wybodaeth wedi mynd mewn i'r pen. Mae angen negeseuon clir oddi wrth arbenigwyr. Mae'n bwysig hefyd fod yr arbenigwyr hynny yn gallu cyfathrebu â'r ffermwyr, ac eto dyna le rwy'n gweld Cyswllt Ffermio yn dod mewn i ddarparu'r ffordd o drosglwyddo hynny i bobl. Rwy'n teimlo bod yr amgylchedd, y tir a meddwl am y dirwedd yn hynod o bwysig i ffermwyr. Yn reddfodol, nid ydynt eisiau gwneud rhywbeth a fydd yn niweidio'r tir. Dyna beth yw eu bywoliaeth nhw. Felly, rwy'n meddwl eu bod, yn eu calonnau, mo'yn gweithio i wneud yn siŵr bod eu ffermydd yn gallu cynnal cenedlaethau'r dyfodol. Mae ffermio i gyd aboutu trosglwyddo'r fferm i'r genhedlaeth

Ms Williams: I would say, in terms of the definition of sustainable intensification, that it can mean different things to different people. This comes back to another point: in terms of communicating with farmers, the messages have to be clear. At the moment, I feel that, at times, mixed messages are presented to farmers. If people are not clear about something, the information has not been absorbed properly. Clear messages are needed from experts in the field. It is important also that those experts are able to communicate with farmers, and that is where I see a role for Farming Connect in providing that means of knowledge transfer. I believe that the environment, the land and thinking about the landscape are extremely important to farmers. Inherently, they do not want to do anything that will damage the land because that is where their livelihood is. Therefore, I think that, in their heart of hearts, they want to work in order to ensure that their farms can sustain future generations. Farming is all about the next generation; they want to make a living, but the most important thing on the

nesaf; maen nhw mo'yn gwneud bywoliaeth ond y peth pwysicaf sydd ar feddwl unrhyw ffermwr yw trosglwyddo'r ffarm i'r genhedlaeth nesaf. Felly, nid yw o fudd iddynt i wneud unrhyw beth a fydd yn niweidio hynny. Mae pobl yn buddsoddi mewn prynu tir, ond nid ydynt yn gweld *return* ar yr *investment* yn eu bywydau nhw o gwbl; mae'r cwbl yn ymwneud â'r genhedlaeth nesaf. Felly, mae'n hynod o bwysig iddynt allu meddwl y bydd popeth yn iawn ar gyfer y genhedlaeth sydd i ddod. Nid wyf yn siŵr fy mod i wedi ateb y cwestiwn.

mind of any farmer is to transfer that farm in good order to the next generation. Therefore, it is not in their interest to do anything that is going to damage that prospect. People invest in buying land, but they do not see a return on that investment in their lifetime at all; it is all about the next generation. Therefore, it is extremely important for them to be able to think that everything is in good order for the next generation. However, I am not sure that I answered your question.

[142] **Joyce Watson:** Thank you; no, not at all, actually. You gave me a good overview of what it means to be a farmer, and their passion was expressed very well, but you did not actually answer the question at all. In terms of sustainable intensification, what are your views on what it means? If there is confusion, that is what we need to feed back. If people do not understand what it means, how on earth—no pun intended—are we going to take it forward?

[143] **Ms Williams:** Y neges yr ydym ni yn trio ei rhoi yw y gallwn gynhyrchu bwyd heb niweidio'r amgylchedd mewn unrhyw ffordd—mae'n rhaid cael balans rhwng y ddau beth. Efallai fod Gary am ychwanegu at hynny.

Ms Williams: The message that we are trying to convey is that we can produce food without damaging the environment in any way—we need to strike that balance between the two things. Perhaps Gary would like to add to that.

[144] **Mr Douch:** I would agree with that definition; in relation to what Jamie said earlier, I favour a very simple, clear definition of sustainable intensification. It is very important to get the message across to the farming industry. Some of the evidence that we have collected recently suggests strongly that the messaging to the farming community needs to be more visual and more practical because that is the learning preference of the majority of the farming audience. So, whatever we convey through Farming Connect, which we are talking about today, or through anything else, needs to be done in a practical, visual sense because of farmers' kinaesthetic learning preference. Whatever definition we use, we need to get it across in that sense to the industry in order for it to take it up.

[145] I would also add that it needs to make business sense. In relation to the climate change and sustainable intensification agenda, in terms of driving business efficiency, which is at the core of what we are doing, one of the outputs every time is the environmental benefit, along with other benefits that come with it. By conveying that message to the industry, we are finding that it has much more of an effect.

[146] **Yr Arglwydd Elis-Thomas:** Diolch yn fawr am hynny. Llyr, yr oedd gennyt ti gwestiwn.

Lord Elis-Thomas: Thank you very much for that. Llyr, you had a question on this.

[147] **Llyr Gruffydd:** Mae Eirwen, drwy beidio ateb y cwestiwn, wedi codi sgwarnog pwysig arall mewn gwirionedd, ac mae deunydd diwrnod cyfan arall inni, bron iawn, yn hynny o beth o ran rhai penderfyniadau ar y fferm nad ydynt yn gwneud synnwyr o safbwynt busnes y fferm, ond sy'n gwneud synnwyr o safbwynt y gwaddol a

Llyr Gruffydd: Eirwen, in not answering the question, has raised an important issue, and perhaps there is material for another day here in terms of some on-farm decisions that do not make any sense as regards the farm business, but make perfect sense in terms of the legacy and enhancing the legacy to be passed on to the next generation. How one

chyfoethogi'r gwaddol sydd i'w basio ymlaen i'r genhedlaeth nesaf. Sut mae rhywun yn mynd i'r afael â hynny, nid wyf yn gwybod.

grapples with that, I am not quite sure.

[148] Yng nghyd-destun yr RDP arfaethedig, mae brand Farming Connect yn llwyddiannus ac yn un y mae pobl yn ymddiried ynddo—ac nid yw hynny'n rhywbeth y gallwch chi ei ddweud am *consultants* fel brand yn aml iawn—a ydych chi'n rhagweld, felly, o dan y cynllun datblygu newydd a thema *green growth*, y bydd angen newidiadau sylweddol, neu a ydych chi'n awyddus, fel Llywodraeth, i sicrhau bod y gwasanaeth yn llywio cwrs eithaf cyson?

In the context of the proposed RDP, the Farming Connect brand is successful and one in which people trust—and that is not something that you can say about consultants more generally—therefore, do you anticipate, under the new RDP and its theme of green growth, that significant changes will be required, or are you eager, as a Government, to ensure that this service steers a consistent path?

[149] **Mr Douch:** O ran y ddogfen, rydym am ddatblygu'r hyn sydd gennym yn barod. Dyna fyddai'r cyngor y byddwn i'n ei gynnig. Yn sicr, dros y chwe blynedd diwethaf, mae lot o'r wybodaeth a'r *feedback* yr ydym wedi'u cael wedi eu bildo i mewn yn barod i'r contract newydd. Felly, mae'r hyn yr ydych yn ei weld gan Menter a Busnes wedi cymryd gwybodaeth o'r tair neu'r pedair blynedd gyntaf, o ran cael llai o gontractau a chontractau sydd yn *flexible* dros gyfnod yr RDP. Rwy'n credu bod hynny'n bwysig achos er ein bod ni'n meddwl am yr hyn yr ydym mo'yn yn awr, mae angen meddwl am y pump neu chwe blynedd nesaf hefyd, felly mae angen bildo *flexibility* i mewn i'r contractau, fel Cyswllt Ffermio. Mae'r *evidence* sydd wedi dod yn ôl o'n gwaith annibynnol yn dweud yn gryf fod angen cadw'r brand gan fod gwerth iddo. Os edrychwch chi'n ôl at breifateiddio ADAS, un o'r pethau mwyaf gwerthfawr, yn fy marn bersonol i, oedd y brand.

Mr Douch: In terms of the document, we are looking at developing what we already have. That is what our advice would be. Certainly, over the past six years, a great deal of the information and feedback that we have received has already been built into the new contract. Therefore, what you are seeing from Menter a Busnes has drawn in information from the first three or four years, in terms of having fewer contracts and contracts that are more flexible over the RDP period. I think that is important because even though we are thinking about what we want at this point in time, we must also think about the next five or six years, so we need to build flexibility into the contracts, such as for Farming Connect. The evidence that has come back from some of the independent work that we have undertaken demonstrates clearly that we need to keep the brand because it has a value. If you look back to the privatisation of ADAS, one of the most valuable things, in my personal opinion, was the brand.

11:30

[150] Mae *identification* yn awr i ffermwyr i fynd i un lle—un man cyswllt—i gael *access* at wahanol bethau trwy'r RDP. Y syniad yw ei gael fel rhyw fath o *portal* mewn ac wedyn bod yr elfennau eraill sydd ar gael, er enghraifft, pethau amgylcheddol fel Glastir, yr *YES scheme* neu beth bynnag, ynghlwm wrth hynny. Mae cael un *portal* syml, gydag enw clir, un rhif ffôn, un wefan, ac yn y blaen, yn *principle* sydd ynghlwm â'r RDP yn ei gyfanrwydd. Yn sicr, mae hwn yn

There is now identification for farmers so that they can go to one place—one point of contact—to access different things through the RDP. The idea is to have that as some kind of portal, and then the other elements that are available, for example, environmental schemes such as Glastir, the YES scheme or whatever, could be attached to that. Having one simple portal, with a clear name, one phone number, one website, and so on, is a principle that is tied into the RDP

rhywbeth rydym wedi bod yn ceisio ei ddatblygu dros y blynyddoedd diwethaf, ac mae'n dwyn ffrwyth yn awr, yn enwedig o ran y gwaith y mae Menter a Busnes yn ei wneud gyda ni.

[151] **Yr Arglwydd Elis-Thomas:** Mae hynny wedi bod yn werthfawr iawn, os caf ddweud. Rydych wedi bod efo ni am dri chwarter awr a diolch yn fawr i chi. Hoffwn ddweud pa mor werthfawr oedd cael y crynodeb hwnnw ar y diwedd o'r hyn rydych yn ceisio'i wneud fel swyddogion ar ran Llywodraeth Cymru ac ar ein rhan ni fel trethdalwyr Cymru. Mae gwleidyddion weithiau'n anghofio ein bod ni hefyd yn manteisio ar yr hyn y mae Llywodraeth Cymru yn ei wneud. Nid wyf yn edrych ar neb yn arbennig. Beth sy'n bwysig i ni, os ydym yn mynd i ddweud pethau ynglŷn â'r pwnc o reoli tir yn gynaliadwy, a chan ein bod ni'n amlwg yn mynd i ddweud pethau ynglŷn â'r rhaglen datblygu gwledig, yw ein bod yn gallu bod yn hyderus bod y pethau hyn yn mynd i gael eu delifro, oherwydd rydym yn canolbwyntio mwy a mwy fel pwyllgorau yn y Cynulliad erbyn hyn ar ddelifro ac ar ganlyniad beth sy'n digwydd, yn hytrach na jyst gwneud adroddiad ac i ddim byd ddigwydd o hynny.

[152] Nid rhybudd yw hwn, ond gair cyfeillgar: byddwn yn dod yn ôl atoch chi eto i weld sut mae pethau wedi gweithio mas. Byddwn yn sicr yn mynd yn ôl at y Gweinidog achos rydym yn gwybod bod Cyswllt Ffermio yn bwysig iawn i'r Gweinidog, fel canolbwynt ei strategaeth, ac mae'n amlwg wedi bod yn derbyn cyngor doeth yn y cyfeiriad hwnnw. Rwy'n siŵr y bydd hynny'n parhau. Mae'r gwaith ymarferol a brwdfrydedd heintus Eirwen, chwarae teg—beth bynnag y mae Eirwen yn ei wneud, mae brwdfrydedd heintus o'i gwmpas—yn treiddio trwyddo i'r staff. Gallaf ddweud hynny hefyd, fel rydych yn gwybod. Diolch yn fawr iawn.

as a whole. It is certainly something that we have tried to develop over the past few years and is bearing fruit now, especially in terms of the work that Menter a Busnes is doing with us.

Lord Elis-Thomas: That has been extremely valuable, if I may say so. You have been with us for three quarters of an hour, thank you very much for your time. May I also say how valuable it was to have that summary at the end of what you are trying to achieve as officials on behalf of the Welsh Government and on our behalf as Welsh taxpayers? Politicians sometimes forget that we also benefit from what the Welsh Government does. I am not looking at anyone in particular in saying that. What is important for us is that, if we are going to comment on the issue of sustainable land management, and given that we are going to make comments on the RDP, we can be confident that these things can be delivered, because we are concentrating more and more as committees in the Assembly on delivery and on outcomes, rather than on simply writing reports and for nothing to emerge from that.

This is not a warning, but a friendly word: we will be returning to you to see how things have worked out. We will certainly be returning to the Minister because we know that Farming Connect is extremely important to the Minister, as it is at the heart of his strategy, and he has clearly been given some wise advice in that direction. I am sure that that will continue. The practical work and the infectious enthusiasm of Eirwen, fair play to her—whatever she does, there is infectious enthusiasm surrounding it—permeates through to staff. I can also say that as well, as you will know. Thank you very much.

*Gohiriwyd y cyfarfod rhwng 11:32 ac 11:48.
The meeting adjourned between 11:32 and 11:48.*

**Rheoli Tir yn Gynaliadwy: Tystiolaeth gan Ganolfan Ymchwil Amgylcheddol
Cymru**
**Sustainable Land Management: Evidence from Wales Environment Research
Hub**

[153] **Yr Arglwydd Elis-Thomas:** Bore da i Dr Shaun Russell. Mae'n bleser mawr gennyf groesawu fy nghydweithiwr i'r sesiwn dystiolaeth hon yn Aberystwyth.

Lord Elis-Thomas: Good morning to Dr Shaun Russell. It is a huge privilege to welcome a colleague to this evidence session here in Aberystwyth.

[154] I have always wanted to ask you in public what you actually do and what the centre does. [*Laughter.*] So, now is your opportunity. You have set it out in the paper, but it would be useful to have it from the horse's mouth, as it were.

[155] **Dr Russell:** Yes. I wanted to not push forward my institute or what I do—as maybe other people feel that they have to do—but to say that we are just a little service unit, funded by the Welsh Government, but hosted in Bangor University. We are called the Wales Environment Research Hub and we sit at the interface between academia—the scientists—and policy makers. What the Government pays us to do is to inform it. When we were set up six years ago, we were called a one-stop shop for people from the Welsh Government and from the environment agencies, as they then were, to come to us and ask, 'Who is doing what and where about this or that in the environmental science sphere?' So, we would not only respond to individual requests for information on who is doing work on environmental monitoring in Wales, who is doing work on ecosystems services and environmental economics, but bring those two sides of the equation together: academics and policy makers. That has been mostly what we have done in the last six years: workshops, conferences—two, three, four, five or six events every year—on issues of interest to the Welsh Government in the environment arena, for exchange of views, knowledge and information between the scientists and the decision makers and policy makers.

[156] **Lord Elis-Thomas:** Do you think that inquiries such as ours will bring you even more work?

[157] **Dr Russell:** They will indeed, I think. The particular subject of this inquiry six years ago I would have been expected not to touch, because we were set up under the environment department of the Welsh Government, which was separate from the rural affairs department in those days. The Wales Rural Observatory was supposed to do the work that we did on the environment side. However, as you can see, it all very much overlaps and comes together. So, slowly, my work has shifted from just dealing with the silo, almost—that is the jargon—of what was the Wales environment strategy of 2006 to now looking right across the board. I was always keen on sustainable development, and have always supported work that crosses and is overarching in that sense, so we are doing more in that way, and we are not just constrained by the old Wales environment strategy, but very much looking forward and helping with information in support of the sustainable futures Bill and the environment Bill, and even hoping to get involved, if we are asked, in the planning Bills that are coming up, which, of course, are at the root of how we actually deal with the land and its management, not just in rural areas but, of course, in urban areas as well.

[158] **Lord Elis-Thomas:** We, of course, as a committee, are involved in all of the pieces of legislation that you referred to, and we find that the combination of studies in depth like this one, on the sustainable management of land, is a very important part of our scrutiny of policy work, but also of understanding what we will have to deal with when we come to legislate, because there is no point legislating in these complex areas without understanding the need for that legislation, and, hopefully, writing it in such a way that it is intelligible.

Would you like to start, Russell, since you were not here?

[159] **Russell George:** I can do, yes. Thank you, Chair. Good morning. I do not know whether you have had time yet to look at it, but the Welsh Government has now launched its consultation on the rural development plan. It was a few days late, but it has been out a few days now, so I am not quite sure whether you have had a chance to look at it, or at least the executive summary, perhaps.

[160] **Dr Russell:** I have had a look through, yes. It seems to have a very nice balance of the sort of vision that we are hearing about: sustainable development, the ecosystem approach—which we can talk more about, if you like; it is a technical term, and there are better ways of expressing it—and, of course, keeping the economy going and maintaining the landscapes that we have been used to, which are why visitors come to Wales and are what we love about Wales. So, the balance seems to be in there, in the RDP, and, initially, looking at the allocation of funds, I am not quite sure how these things are done in—well, not smoky rooms, any longer, but in dark rooms, perhaps, in a corner somewhere. It looks good. There is more money than there was in the previous rural development plan and it is shifting towards what not only Europe wants, but scientists are saying that we have to move in the direction of taking into account the whole basket of ecosystems services—what nature provides for us in value and not just one or two subsidised streams.

[161] **Russell George:** How do you think that it could provide better support for knowledge transfer?

[162] **Dr Russell:** I see that Farming Connect with its links to ADAS and the other business organisations at a grass-roots level is very much in there as an important part. There is a big amount of funding set aside for knowledge transfer. I think that that is very important. As you have seen from some of evidence, some people are saying that you must make sure that not too much money goes to consultants. There is always that concern. We are also hearing that there are entrenched, traditional views that may need shifting and people's awareness needs to be raised as regards nature-orientated farming, which takes the whole range of benefits that nature gives us into account. There certainly needs to be more education, training and knowledge transfer in that area. It is nice to see money for youth access to agriculture being targeted. That should also make a difference, as I have noticed in the schools that our syllabi for youngsters over the years have included much more on sustainable development and environmental science in geography. Therefore, youngsters coming through seem to have this understanding and, from what I have seen in young farmers' meetings, that is transferring through into the younger generation. So, there is definitely hope for the future. I almost feel as if this inquiry comes at a tipping point—at a moment when we have maybe reached a bit of a low point in terms of our loss of species, damage to the environment and what we are doing to the atmosphere, as we have seen right here in Aberystwyth in the last few weeks. All the right talk is being talked now, from the Minister down, and it is part of your job, I guess, to talk mechanics and the detail of how we are going to do that on the ground. That is where organisations like Natural Resources Wales will have a large role to play.

[163] **Joyce Watson:** Would you explain your comments about the current monitoring being biased in favour of traditional targets? You named species and water and air quality and you said that there needs to be a broadening out of the scope and the flow of services should be mapped from source to beneficiary. What exactly do you mean by that?

[164] **Dr Russell:** Traditionally, we have looked at species and we have good data on the loss and the decline of many species in Wales. When you start looking at habitats as a whole, it gets more difficult, because they are complex mixtures. We do not have such a handle on the flows of materials into and through those habitats. That is what ecosystems services are mainly about: they are about the energy, the water, the air component and the chemistry of the

system. We are not up to the mark in our knowledge of some of those aspects when we are trying to work out what is going where, who the beneficiaries are, what the value is of what they are receiving and whether more people could be getting more from the particular habitat. It is about measuring some of those aspects other than just the water quality, for example, which we have long records on, or just the numbers of species. We are possibly the best country in the world when it comes to species' measurement—we have hundreds of years of amateur monitoring, as well as professional monitoring, of plants and animals, for example, but we still have big gaps in our knowledge, not least in terms of the little things that make the world go around. We may know a lot about birds and furry things, but we do not know so much about the little plants and the little things in the soil that are part of the functioning system, which can be damaged by our management practices without us hardly knowing it, until we see reduced fertility or soil being broken down and washed away. We need to monitor a little bit more of those hidden things in the future.

[165] **Joyce Watson:** Do you think that now is a good time to do that? You have already addressed the fact that the rivers are flowing faster, deeper and wider, as well the seas. Do you think that this is the moment?

[166] **Dr Russell:** We have to use what we have in terms of knowledge to respond to emergencies and immediate disasters. However, looking ahead, we must manage the environment so that we are resilient or resistant to such impacts. The obvious one is tree planting for flood control, not only upstream in rivers but also in flood plains. There is a lot more opportunity for managing the landscape in ways that we can make money from what is there, while at the same time protecting us from some of the damage that would occur if, as in that example, those trees were not there.

[167] **Lord Elis-Thomas:** Julie James is next.

[168] **Julie James:** I will just follow that through. One of the things that I am really interested in doing is expanding knowledge across the whole of our citizenship regarding the effects of some of the practices that we all take for granted. You were here earlier when I briefly mentioned the controversy in the Somerset levels regarding whether we dredge or stop some of the farming practices that are causing the silting of the rivers in the first place and how controversial that is. One of the things that I am very interested in looking at, as we progress this agenda, is how we both reward people in agriculture, and indeed in towns and cities, for the right behaviour—such as vegetable planting in their gardens rather than leaving them go, or allotment use or city farms, as well as the more traditional agri-environment things—and how we visit the consequences of them not doing that, because I think that people need to understand both of those approaches. How do you feel that we are progressing that agenda, and what else do you think that we could do? I know that we are a long way off getting there, but I am interested in the direction of travel.

12:00

[169] **Dr Russell:** I was interested in your comments about the urban sites. I have done work overseas where there is a lot of interest in these vast urban complexes of what is called peri-urban agriculture, which is agriculture closely connected to the needs of cities in the environs of the cities, and even intra-urban corridors, green corridors and green infrastructure. It is about flood alleviation, education and improving biodiversity. At the same time, you have farm gardens in the actual centres. I think that there is a lot more scope for that. It is a great sadness that we have lost Morgan Parry, whose last job was with the allotments federation, the Federation of City Farms and Community Gardens, and who was a board member of Natural Resources Wales. He was getting that sort of thing going—he was always interested in that, ever since he was a country park manager in Gwynedd many years back. That is valuable for the future as well. It is a matter of connecting people in the cities with this

almost rural environment that is brought into the cities, and linking to the outer provision of food for the cities. I think that we can grow more food in Wales. We proved it in a coercive environment during the two world wars, where we doubled arable production, of course; so, that is possible. With the sorts of crops that we have today, we could do more of that. I think that it is possible, given our landscape, our geology and our soils, which are not the best for highly productive agriculture but are good enough in a cool, temperate and well-watered environment, to grow more food than we do now, but to also have vegetation and habitats that give us more, including carbon storage, as a contribution to the control of greenhouse gas emissions. There are other aspects to that as well, such as water quality management aspects and cultural aspects, along with aesthetics and educational benefits.

[170] **Julie James:** One of the things that I have been looking at a lot in my own constituency, which is very urban, is more use of the riparian corridors through there. I am very keen on reconnecting the canals and sorting out some of the river issues because they travel through some of the poorest communities that we have. Those are the communities that often least understand where their food comes from, and what their connection back to the land is, as the previous witnesses were talking about, I think. We really need to connect those people back into the agricultural environment because that is what drives this search for ever cheaper chicken and so on, of which I personally disapprove. Again, I just wonder whether you have a direction of travel that you can show to us for how we connect these two agendas together. I think that that is a very important point.

[171] **Dr Russell:** I was interested to see that the Minister for Natural Resources and Food, Alun Davies, is using the phrase ‘poverty alleviation’, which has come into Welsh Government speak in the last few years. That is very relevant to what you are talking about. There are certainly examples around the world of developing farms, urban farms and places for education, such as the green centre in the Isle of Dogs, in London, for example, which has massive attendance from school children. In fact, one indirect way of measuring the value of the environment, which Professor Donnison was talking about earlier, funnily enough, has been to look at how much schools will spend of their hard-pressed education or natural-curriculum-directed budgets on environmental and field visits for their children. You can see lots of schools in the London area, for example, paying a lot of money to visit those centres. So, it is a sign that people are interested in that. It is coming into the curriculum and it is impinging on the consciousness of our youngsters through these moves in the curriculum and schools that can afford and want to do that sort of thing. Like everything else that we are talking about, it is a free country—some people do it and some people do not. It is the same with the whole question that we are looking at of sustainable land management. Most of our farms are privately owned and people can decide what they want to do with them. As to how we are going to, as you say, incentivise people to move in the right direction—and the word ‘penalise’ was used earlier—this is a difficulty in a free, democratic society, it is true, and, really, you get changes like this through education. It tends to be a long-term thing, through a general trend. The very fact that you are discussing this in this committee shows that there is a change going on. I am doing a disservice to the Chair, who has been an environmentalist since the year dot, kind of thing—

[172] **Julie James:** Not just the Chair, I feel obliged to tell you. [*Laughter.*]

[173] **Dr Russell:** Absolutely, there are lots of passionate people on this committee, I have noticed. This is the first time that I have ever been called to a committee so I have been looking at a few people up, and it is nice to see that your committee is going to be—. From the evidence that you have taken, one thing that has impressed me, not only from the questions you are asking but from the evidence, which seems to have a lot of consistency in it, is this phrase, ‘ecosystem approach’, which I try to avoid but which is starting to trickle into our consciousness, as it is in almost all the material. My colleague behind me is actually starting training tomorrow for Natural Resources Wales staff in the ecosystem approach. So, our main

environment body in Wales is training its own people in this. The Welsh Government has asked about the possibility of training across the departments—not just in the department where responsibility for environment and sustainability lies—in this approach. I think that it is starting to take root, so I think that your inquiry comes at just the right time to push this agenda onwards.

[174] **Joyce Watson:** No pressure.

[175] **Julie James:** Yes.

[176] **Mick Antoniw:** First, thank you for your paper, which I found absolutely fascinating. We have had some very good papers, but I think that the scope and breadth of yours has certainly opened my eyes in a number of areas.

[177] **Lord Elis-Thomas:** Not to mention the pictures.

[178] **Mick Antoniw:** The pictures as well—colour pictures make a big difference for those of us brought up on comics. [*Laughter.*] In appendix 1 of your paper you say:

[179] ‘In Wales during the past 20 years, the NEA estimated that 20% of habitat ecosystems services improved, 31% showed no net change and 49% deteriorated.’

[180] So, with all the regulation and all the work being done by environment agencies, bodies and so on, it seems that we are, almost Canute-like, trying to hold back the sea and that not only have we not been making progress, but we are actually going backwards. What is the current trend?

[181] **Dr Russell:** I wanted the opportunity to explain those figures. In the UK national ecosystem assessment, there was a diagram, which was kind of the world and everything in it. We were asked to put together a list of the habitats, the ecosystems, of Britain—in our case, the chapter that we did was on Wales—versus the services: habitats versus the services, what nature gives us from those habitats. We were asked to say what their status was, what condition they were in and what movement there was—were they getting better or were they getting worse?

[182] Now, on those percentage figures, we in our little Wales group called it, not to be too facetious, the ‘horrendogram’. [*Laughter.*] For you to really try to decide in all of those boxes what is happening and just put an individual arrow showing whether things were up, down or stable hides such a plethora of complexity in every box. It is really impossible to say that this is the final answer. Okay, masses of information have gone into it, there is lots of expert judgment et cetera, and I could justify, I think, my opinion on every one of those boxes. However, all the percentage figures represent—and this is what came from UK national ecosystem assessment central, it was not my idea—is the adding up of the number of boxes with down arrows or up arrows. That is where those figures come from. So, you cannot place any more reliance as an absolute figure on those percentage figures than what I have just explained.

[183] However, things such as the fact that we have damaged our marine habitats, the fact that our soils are washing out to sea and being degraded and the fact that we are losing species are all happening, as we saw in the ‘State of Nature’ report more recently. Things that are going up include agricultural production. We are getting more out of fewer animals because we have better farming techniques. That sort of thing is going up, and that is reflected on there. So, you have trade-offs: pluses and minuses. There are benefits on what we call provisioning services: food, fibre—

[184] **Mick Antoniw:** So, it is not quite as pessimistic as I read into it just by taking the bland figures.

[185] **Dr Russell:** That is right.

[186] **Mick Antoniw:** However, in terms of wanting, first, to halt the decline but, secondly, to move forward so that you can see an overall improvement, do we now have the powers and measures, and are we taking the sort of action to begin to reverse that trend, or are there things that we need to do far more solidly in order to achieve that?

[187] **Dr Russell:** What I see in the consultations for the RDP, for the Green and then the White Papers on the environment, is all moving in the right direction. The planning Bill that is coming up will be crucial in terms of how decisions are made by people, not only the planning officials, but those on the committees in the councils that then make the decisions, and how advisers in organisations like Natural Resources Wales, who are just about to start their training with my colleague behind me, apply this approach, taking a lot more things into consideration than just asking, 'Is this piece of land good for putting a house there, or a sheep field, or a road?' They will need to think not just of getting a number of cars from A to B, but of what that will cause in terms of pollution run-off, the energy expended and wasted, and all those sorts of things.

[188] In the Bills that are coming up, the right things are in place. It will come down to the detail of how they are applied, though, because at that Bill level, you can have only so much and, knowing Britain and knowing Wales, there will not be a lot of coercion or penalties in there; it will be very much a case of, 'This is the right thing to do,' and you will have that long-term educational process to go through. However, I think that there is scope for change in regulations and rules, more at the grass roots, not least in the way that schemes like Glastir are run, where we have seen several people asking for more flexibility right down to the field level in the way that the money is applied and spent, so there can be more diversification and opportunities to apply different approaches in different particular habitats. Doing things at the high level with a one-mode approach for the whole landscape is not right. Nature does not work like that, and we do not work like that as human beings in our relationship with nature, so I think that there is scope for the laws to set the place at the top for policy and education to flow through right down to local authorities, but not just local government. Business and the private sector are coming on board. We have seen that with Dŵr Cymru Welsh Water, which has a whole new research fund, or the water framework development fund, which it never had before, to promote some of these ideas, particularly in the ecosystem-approach way. Many non-governmental organisations are already waving the flag and driving forward—Wales Environment Link and many of its members, in the evidence that you have taken, are calling out for moves in this direction. So, I think that if we are all on board with this idea, some of the sticks-in-the-mud and the people who have not yet got it will come along eventually. I am talking outside my remit as the environment hub director and more as a private citizen here in terms of thinking that the ecosystem approach is the right way to go and in hoping that the Bills that we see coming up will move towards that.

[189] **Mick Antoniw:** That leads me on to something that I specifically wanted to ask you about, because we have three key pieces of legislation, namely the environment Bill, the planning Bill and the—I am sorry, I have difficulty with the name, which I do not like—future generations Bill. Within those—some are in draft form and some have not yet been published, but there are outlines and so on—there are things of concern, such as village green issues in things like the planning Bill, that obviously we need to look at.

12:15

[190] The future generations Bill looks as though it is going to be about the establishment

of a sustainability framework, but sustainability within the concept of enviro-socioeconomics—so, pulling in the links in terms of real practical sustainability. How important is that piece of legislation, and what do you think that we need to do within that legislation, in real terms? We have plenty of policy papers, documents and so on, but in terms of actually making a tangible difference, what does that legislation need to achieve to start reversing the sorts of trends that you have been talking about?

[191] **Dr Russell:** It is a shame to have to go back to this jargon phrase of ‘ecosystem approach’—this idea of taking account of all the benefits that we get from our environment, and not focusing on just one or two when making decisions. If that ecosystem approach, or the ideas that it encapsulates—which are very close to the whole concept of sustainable development—could be entrenched or embedded in that sustainable futures Bill in some way, that would be great. We have seen the term ‘ecosystem approach’ in the environment Bill, but to see it in the planning Bill would be nice, or to see terminology that goes in the same direction—in other words, not the silo working of individual departments or Bills that affect or are purveyed by individual departments, but something cross-cutting. Sustainable development is cross-cutting. It always has been. Wales has led the way, what with our duty in the original Government of Wales Act, and we have followed through on that, with certainly Government getting it. In fact, a couple of consultants who have analysed progress in sustainable development in Wales for the Government have said, ‘Yes, they are talking the talk, even walking the walk, at top Government level—it is about getting it down to the grass roots, into local authorities, and out into the private sector’. The private sector is coming back. It is often ahead of the game. There is a lot of interest in the private sector in the biodiversity aspect. Many companies now are greening their estate in the same way that the Government is greening its estate. So, it is about getting it spread through society, really. I would have to spend more time trying to think of a phrase other than ‘ecosystem approach’, really, to have it embedded there. To get that phrase into the sustainable futures Bill would be an enormous leap forward in my estimation. Whether it will happen or is politically expedient is another matter, but the ideas should be there at least.

[192] **Mick Antoniw:** Presumably, when these Bills start going through evidence sessions and scrutiny, you will want to be specifically putting in evidence and views as to whether it actually provides for that sort of requirement.

[193] **Dr Russell:** Yes. Peter Davies, the sustainable futures commissioner, has co-opted me onto his panel, the advisory panel, so I have been to a couple of those meetings. I have mainly been supporting the environment Bill in evidence provision, and that has taken up a lot of my time because there is really only me, at the moment, at the Wales Environment Research Hub. However, yes, I would like to think that my little unit had a future, not only supporting the environment Bill, but the futures Bill, the planning Bill and even the culture and heritage Bill, which I think also overlaps very much with what we are talking about here.

[194] **Llyr Gruffydd:** I am going to pursue the theme of payment for ecosystems services. You say in your paper that there is little expertise in Wales for environmental economics and ecosystems services valuation, so maybe you could expand a little on that initially, if you would.

[195] **Dr Russell:** We have a good team here, led by Professor Mike Christie at Aberystwyth. We lost, tragically, Professor Gareth Edwards-Jones of Bangor University, who was a world expert in this area, a few years back. We have economics teams at Cardiff University in the business school who will do environmental work. They do the tourism satellite account for Wales. We have heard that not only do you need a high-level environmental economics—almost a policy assessment or a cost-benefit analysis of policy—but that it is needed right down to some of these individual planning decisions. If staff in Natural Resources Wales are to try to decide on the value of this basket of benefits, versus the

single one that we might have been deciding on in the past, and some of those values cannot be monetised—you put differential values on them that are not pounds, shillings and pence; you can value them in other ways—then we are going to need more expertise. We are often going outside Wales for that expertise. Wales likes to portray itself as a small, green country, leading by example in sustainable development, and we have the sort of landscape that attracts people to us from all over the world because of that perception of ourselves. If we want to build on this to create a truly green economy using our green credentials and advantages, we need more of those valuations to convince people. That is sad for me, because I believe that some things are infinite in value and you cannot put a price on them. However, in order to change minds and influence people, sometimes you have to put pound signs on them, for obvious reasons. So, I think that we need more of that.

[196] **Llyr Gruffydd:** So, the models or the systems for the ways of doing that are there; it is just a case of getting that transfer of knowledge to the right place.

[197] **Dr Russell:** Absolutely. There is a lot of it done overseas in developing countries, and we could certainly do with more here given the direction in which we are heading.

[198] **Llyr Gruffydd:** Okay. You list in your paper some examples of methodologies for payment for ecosystems services, and there are very interesting links there. One that caught my eye particularly was the reverse auction process. However, I am particularly interested in ways of levering private sector money into those payments. Are there particularly promising models?

[199] **Dr Russell:** That particular example that I gave of the river Fowey auction was paid for by South West Water, which is a private company. So, yes, the interest from private companies in carbon offsetting is there. In fact, there was a very interesting report last year by the Ecosystems Markets Task Force, a DEFRA-supported organisation, on business opportunities for our ecosystems services, not just the traditional ones such as tourism, although we could be doing a lot more in the way of sustainable tourism, which the Welsh Government is supporting to a degree through the Wales sustainable tourism forum, but there are also opportunities through things like carbon accounting and water payments. I have a copy of it in my pile of papers here, so I will grab it in a hurry, hold it up and wave it in front of you. However, I would be happy to put that as another reference in my evidence, if I have not already done so. Forty potential business opportunities deriving from our ecosystems services were listed after that long and valuable study. They took the top-12 ideas that include, for now, carbon credits and peat land rewetting. Companies could pay for offsetting their various processes by buying into these new markets.

[200] The Wales Environment Research Hub ran a workshop four years ago on what we called ‘missing markets’ for ecosystems services. All the materials are on our website about these different markets. This workshop was looking around the world at what is being done, not just here in the UK, to find ways that we could open it up. The European carbon trading scheme is the most obvious one, but we looked at various sorts of offsetting and ways in which the private sector could get involved.

[201] **Lord Elis-Thomas:** I call Julie Morgan and then Julie James.

[202] **Julie Morgan:** Llyr covered most of what I wanted to ask, but I have just one point going back to Mick’s question about the future generations Bill. I went to the launch of this conversation that we are going to have with everyone in Wales—‘the Wales we want’. I just wondered whether you saw any role for your unit in that and what you think of that approach, linked to the ecosystem approach—

[203] **Dr Russell:** I am glad to see that the Minister has named Peter Davies in his RDP as

such a valuable person to have driving this forward. I think that he will be. He really knows what is going on. However, rather in the same way as Peter is on his own at the moment, so am I. I only have an administrative assistant at the moment, and I am just advertising—we aim to interview in a couple of weeks' time—for a communications officer. I need a science officer to help me scan all this stuff. It is quite a job for just one person. I would like to get more involved in the sustainable futures Bill. Due to the fact that it is so overarching, it is very important to get that right first and everything else, in a sense, will flow from it, and yet it is enough for me just to keep up with the support that NRW needs at the moment, with the ecosystem approach being embedded and the environment Bill, of course. However, I will do my best.

[204] **Julie Morgan:** Yes, it struck me, listening to it, that it could cover every aspect of Government, basically—

[205] **Dr Russell:** Yes, I think that that is what it was intended to do originally.

[206] **Julie Morgan:** Yes. Is that an approach that you agree with?

[207] **Dr Russell:** Absolutely. I am glad to hear that there are interdepartmental meetings going on. Our quite visionary, if you like, chief civil servant in environment, Matthew Quinn, has made sure that there are cross-departmental meetings with economy and transport, with health and the other departments, on the sustainable development duty and the sustainable futures Bill, going forward. So, I think that that is a good sign, although they are all very busy people and, of course, it is sometimes a little bit low down the priority order for the immediate task in hand. However, I think that if we keep pushing at it—the fact that your committee is pushing in the same direction with this inquiry, and some others that you are holding, is a good sign— things will move in the right direction.

[208] **Julie James:** Very briefly, you mentioned in passing overseas development projects that were designed to change people's opinions and views. We have several Wales Africa projects going that are benefiting urban environments, with agricultural environments in various places in Africa. The one in my constituency is with Kenya. Very briefly—and I am not asking for it now—I wondered whether you have any more detail on that that you could let the committee or me have because I would just be really interested to look at that.

[209] **Dr Russell:** I am very happy to. I lived for nearly 20 years in Africa. That is why I come with this sort of development studies background. On opinion change, Gloucester University Countryside and Community Research Institute is coming up next and has done a lot of work in that area. It will be able to answer that better than me, but I am certainly happy to interact and pass on the information that we have because our unit particularly looks not just at Wales and the UK, but further afield. You will have seen, in fact, that there was a diagram in my evidence from South Africa as an example. So, yes indeed, I am happy to help.

[210] **Lord Elis-Thomas:** Thank you very much, Shaun. I will catch up with you in that lovely building one of these days.

[211] **Dr Russell:** Thank you.

[212] **Lord Elis-Thomas:** I am sorry for the delay in calling our friends from Gloucester, but I promise you that we will delay lunch.

12:29

**Rheoli Tir yn Gynaliadwy: Tystiolaeth gan y Sefydliad Ymchwil Cefn Gwlad a
Chymunedau (CCRI), Prifysgol Swydd Gaerloyw**
**Sustainable Land Management: Evidence from the Countryside and Community
Research Institute (CCRI), University of Gloucestershire**

[213] **Lord Elis-Thomas:** Thank you very much for coming to Aberystwyth personally to meet us. I hope that things are improving with the flood situation. We do feel a bit guilty because you realise that you are sitting right next to where all this trouble starts from—the Severn and the Wye. We have a serious ecosystems services problem at the back of this town.

[214] You describe yourself as the largest specialist rural research centre in the UK, and you mention in your detailed answers to our questions the international, and especially the European, work that you do. Would you like to respond to a general question that I asked earlier of our guests from Aberystwyth University and IBERS? What do you see as the essential function of the work that you do as social and environmental scientists in relation to public policy? Do you think that the way in which we are approaching this inquiry as a committee—and I hope that the answer to this is ‘yes’—is on the right track? This question is for Professor Dwyer.

12:30

[215] **Professor Dwyer:** Good morning, everyone. Thank you very much for inviting us across. I take to heart very much your comments about the connections between what goes on here and what goes on where we work in Gloucester. I think that that is really part of how I would answer your question. The CCRI is specifically focused on social science research, but we work a lot with environmental scientists in a lot of multidisciplinary projects and teams. I think that what we feel that we do in seeking to add value to a lot of environmental work is adding the people angle. I began life as an environmental scientist. I changed tack when I came here to do my PhD in agricultural economics, because the more that you explore the environmental challenge, the more you realise that key to it at the end of the day is getting people involved, helping people to understand those challenges, and engaging with them to achieve change. It is only when the people on the ground understand and engage with the challenges that you will get lasting change.

[216] Having worked previously in public sector environmental agencies—I was in the Countryside Commission for eight years—I am very aware that it is easy for agencies to get into rather a world of their own, specialising in their own scientific language and understanding, and pontificating about what needs to happen without it actually ever happening because of this lack of really engaging with people. So, the reason why I really love the work that I do now in CCRI is because a lot of the research work that we are engaged in is working at the ground level with people. Chris Short, my colleague, in particular, is currently involved in around half a dozen local-level projects, working with farmers, trying to understand and appreciate how best you can really make change at the ground level, which is where things need to change if we are going to transform society towards more sustainable long-term resilient practice.

[217] **Lord Elis-Thomas:** We probably must have met in your other life with the Countryside Commission. I cannot believe that we did not. Chris, would you like to explain to us what you do, precisely, with those projects?

[218] **Mr Short:** I just support what Janet said, really. She mentioned that agencies can exist in their own world. I think that universities are very good at existing in their own world and their own language. While I think that it is important that you look at things from different perspectives, we should not be flowing in the same direction all of the time. We

should be challenging what each other are doing, so that we are more confident and more transparent in terms of how we do things. However, as your previous speaker said, it is about the connection, and it is about looking at things in terms of a system. That is a change that needs to happen, not just in universities with their disciplines and departments, but in agencies and Government as well.

[219] **Llyr Gruffydd:** I am particularly interested in helping people to make sense of ecosystems services. It is the main challenge, in a sense, is it not? We have talked about getting that change in mindset and changing outlook as to what land managers do. I think that getting that understanding is key because we have had evidence that suggests that even some of the agri-environment schemes that we have in Wales at the moment are being implemented by farmers, although they do not really appreciate exactly why it is that that work is being done in some cases. I think that it was Professor Nick Pidgeon, in another session that we had, who highlighted to us a piece of work that had been done, I think, for the Welsh Government around developing narratives around climate change. I am just wondering whether you know of similar pieces of work that might have been done around ecosystems services particularly, phraseology and how you sort of build that national conversation around it.

[220] **Lord Elis-Thomas:** Not another national conversation.

[221] **Llyr Gruffydd:** Yes, they are all the rage at the moment

[222] **Mr Short:** I agree that it is an important perspective. I would suggest that it is important to meet people where they are. Forgive me, because I work in England and in Wales, but in terms of the work that we did in Exmoor, which I think that we mentioned there, we had some workshops with farmers in the very early days. It was around three years ago, so they were the early days of ecosystems services. Janet was also there. We tested how to have that conversation. If you talk to farmers, you will find that they are used to working in systems. They understand, hopefully, how different enterprises fit with other parts of their farms. They are used to a rotation. In a sense, they run their own system. So, in fact, that conversation was far easier than we ever thought it was likely to be, and they could understand how—. In this particular catchment, it was around a reservoir, it was very small, and so they could see when they sat down to talk about it that some of the things they were doing on their patch were having a knock-on effect further afield. If you set the right environment so that there is trust and transparency and you can have a dialogue—. In that instance—it was South West Water again—there had been some rocky times in that situation, but now things are rolling on to a much more fruitful negotiation. Information is being exchanged that was not being exchanged before. Going back to your question, it is important to meet people where they are. That is a test for most academics, because they are not very good at—

[223] **Llyr Gruffydd:** And that is—sorry—

[224] **Professor Dwyer:** I was going to say that it is a test for people beyond academia and the farming community as well. I think that what we found from the Exmoor work was that, actually, you need to bring together the different perspectives of the different actors. We had quite a challenge with South West Water because, to some extent, the cheapest and quickest way for it to solve that problem with that particular reservoir would simply have been to buy out the land and to stop farming on it altogether. We were in the business of trying to say that, actually, that might solve one problem but it might not solve other things that might be goals or objectives for this piece of land. Often, the trick is to try to get people to step a little bit back from their immediate concerns to see that other people's concerns could be put together with theirs in a more promising or productive way.

[225] Obviously, if you pursue South West Water's short-term goal, you are getting rid of a

community of practice of working that land that has been there for many centuries. That might be the cheapest option in the short-term, but it might not be the most sensible one in the longer term. It might have negative consequences that go far beyond the immediate goal of cleaning up the reservoir in terms of the perception people have of how water companies operate and what they are there for and what their role in society is. Changing mindsets by finding the right way to bring together different ideas and getting people to step back a little bit from their immediate agendas is a really important part of building the capacity to change and to see things differently.

[226] I think that ecosystems services in that sense—if you can demystify the language—is a much better concept to work with than the sorts of things that are banded around in policy circles at the moment. In Brussels, there is a lot of talk about public money for public goods, and I find that to be a much more unhelpful dialogue to be having about the management of the natural environment in all its complexity and with all the interrelationships that exist between how people use the environment and benefit from it and depend upon it. The idea that all we have to do is commodify everything and then start paying people bit by bit for the things that society wants is naive and not helpful. It encourages among the farming community an idea that this is just about a different type of consumption, when in fact it is much more fundamental. It is about their long-term survival in the landscape. So, I find ecosystems services to be a much more productive concept.

[227] The problem, in a sense, is that the language has been developed in environmental science and you need to find resonance with the sort of language that works with farmers, and with businesses as much as farmers. I often think that, with a lot of this, you can talk a lot with the farmers and you can get farmers very convinced, but if there are people further up the food supply chain who are not listening or not interested, things will not change.

[228] **Lord Elis-Thomas:** Julie James is next.

[229] **Julie James:** Thank you, Chair. I was really interested in the part of your paper where you talked about cultural and social aspects of ecosystems services. You have just outlined a little bit of it, but one of the things we have not seen in any of the things in Wales yet is an acknowledgement of the emotional and cultural attachment people have to some of the so-called ecosystems services. I wonder whether you could just expand on that and perhaps give us some pointers about how we might feed that into our systems.

[230] **Professor Dwyer:** I agree with you. I think that it is a very important area, and it is an area that can be an important motivator for people at the local level. If you ask people what they care about, it is evident that a lot of farming people and a lot of people in rural areas have a very strong emotional attachment to their bit of land or their place—

[231] **Lord Elis-Thomas:** Yes. I hold my hands up. [*Laughter.*]

[232] **Professor Dwyer:** We should not belittle that. We should not say that because you cannot put pounds, shillings and pence on it, it is not important. It is very important and it is often a driver for changing practice at the local level. The trick, really, is bringing the environmental insights into that process of caring. So, caring does not just mean doing what you have always done, because we now know more about the consequences of what you have always done for the wider environment. It is about engendering a learning process through those existing bonds that people have with their local places.

[233] One thing that I think is quite helpful in that regard is often bringing in history, because, if you talk to farmers about the history of the farm, you often find that a lot of very interesting things come out in terms of their understanding of the relationship between the farm and the natural environment. That can be quite an important driver. Again, I think that

this is where Government policy is unhelpful, because it puts heritage in one box and it puts the natural environment in another, and, if they are not talking the same language, you do not get the scope for that synergy.

[234] **Julie James:** We have the chance to link those two things together, actually, in a suite of Bills that we have at the moment. I know that it is not always about legislation, but we have the chance to put some of that language in. I am very interested to hear how you think that we should do that.

[235] **Professor Dwyer:** I think that the work that was done to characterise the historic landscapes of Wales was quite valuable in putting in place a base of knowledge and information on which to draw. To engage with communities, it is going to be trying to bring together local historic expertise, farming knowledge, and the people who are engaged with the business. This is the other thing where there is always a big gap: there are things that people like and care about, but they do not see them as being part and parcel of how they do business. I think that farmers do see those links more than others perhaps because the farm is what matters to them. However, it is getting the people who work in the agencies, the people who have the funding streams, and the people who are the regulators, to see those links that will help the process. How would you do it? Chris, perhaps you could talk a little bit about some of the work that you are doing in the upper Thames and those experiments, where you are trying to—. It is what we call integrated-level delivery, bringing together the different sources of expertise and trying to get them to work together with farming communities.

[236] **Mr Short:** There are a number of pilot opportunities running in England at the moment, and that is about the local delivery of things that we know that we cannot deliver nationally. There are local-scope ones around catchment management, breaking that down. Another one is payment for ecosystems services. I am involved in something on both. It is about bringing those stakeholders together, enabling them to feel part of the solution; I think that a number of farmers and other people feel part of the problem. So, it enables them to have a dialogue so that they can see how they look at things from different perspectives, and you get more of a rounded position. If one community solves a particular problem, that is great for that community, but it has probably just diverted it downstream so that it then becomes a new issue for someone further down. So, you need to take a larger scale view. Importantly, the way that we characterise, and some of the diagrams that we use for ecosystems services, are not especially helpful. I was looking at Shaun's diagram on page 57, and it is one that I use with my students. I showed this to my students, and the first thing that I said about it was that the arrows only go one way. So, it makes nature seem like a commodity: what does nature do for us? It does not look at what we do for nature. A lot of what we do has an impact on nature. Some of that is negative and some of it positive. Given that environmental science is at its root, you have omitted the cultural aspects that sweep across all of the services, and they are squashed into 'cultural services'. There are very strong cultural bits to do with the provisioning services around food, timber, et cetera, to which Janet alluded, as well as there being critical cultural services, like knowledge, which do not seem to—. This is a bigger issue in England, I think, than here, but we do not seem to capture those within the cultural services. So, the pilots that I am involved in are about capturing local knowledge. Many of the issues about water happen at the micro level; so it may be that the Highways Agency has just tarmacked over all of the culverts and that that water is now moving in the wrong direction.

12:45

[237] We have been using local people to walk across some areas to map areas where the water goes, within a small unit like a parish, and working together to see how it flows, where it goes, and where the blockage comes. They can report that back up to the Environment Agency. So, that is looking at those small, soft engineering issues rather than what tends to

come down, which is a hard engineering solution for a big hole somewhere. Then, of course, you cannot agree where the hole is going to be, but the question we ask is: do we need the hole at all? Can we sort out the things that are easy to sort out? If you set the framework right at the top then you enable, with the right questions, the bottom-up approach to contribute.

[238] **Professor Dwyer:** Quite often, when we are evaluating various Government initiatives that are aiming to improve the environment, again and again you come across situations where there has been a policy approach from the centre that is then rolled out across the landscape in almost a homogenous way. Even when, at a local level, the officers charged with delivering that initiative can see that it is not working, they do not feel empowered to be able to change the way they do things; they do what they have been told they have to do. However, everywhere behaves differently, and there is local knowledge that is really important to be incorporated into the design of schemes. This is a particular issue with agri-environment. I have done quite a bit of work recently trying to reflect on what we have learned about agri-environment. Agri-environment is an important part of the mechanisms that you can use to help transformation towards sustainable agriculture, but I think we have become too dependent on it, and we see it as the be-all and end-all when it cannot be. We have also become rather rigid in the way that we seek to design it and deliver it. There is a need to come back to a more flexible system that is based more on farmer learning, and to bring in the insights that you have in Wales. You have a marvellous legacy of insight from the Farming Connect and Agrisgôp programmes in terms of how to work with farmers at a local level in a way which motivates and excites them about the task ahead. That badly needs moving into this arena, I think, alongside Glastir and anything that might follow from it in the new rural development programme. I think, if you do not see the really important links between business-focused advice and environmental sustainability, then you are missing a trick. That is almost where the next Wales RDP needs really to build.

[239] **Lord Elis-Thomas:** Thank you very much for that. Mick is next.

[240] **Mick Antoniw:** Thank you for your paper. I would like to ask you a little about COBWEB—Citizen OBServatory WEB, and some of the data issues and so on. Your paper says that:

[241] ‘The project aims to increase the value and interoperability of crowdsourcing technology to policy makers by enabling the fusion of citizen-sourced data with reference data from a range of sources including data published by public authorities.’

[242] I am just wondering what that actually means.

[243] **Professor Dwyer:** We have colleagues in CCRI who are fired up with enthusiasm for what geographic information systems enable now in terms of new ways to collect data. It is always a problem with environmental science that there are never enough data to show unequivocally that certain things are happening and certain things need to change. Rob Berry, our colleague who put together this particular part, is working closely with colleagues in our biosciences department, looking at the extent to which citizen science can be used to help gather information in a cost-effective manner. Obviously, the more you can encourage citizens to get involved in providing data, the less the cost to the public purse. There are obviously issues of reliability and consistency in terms of the way the data are sourced, but, having said that, some of the best datasets that we have environmentally at the international level, such as the bird index, depend on volunteers. It is all about making sure that your volunteers know exactly what it is they have to do and how they have to operate, and that they are committed to trying to provide data in a consistent way. There is a growing body of work that shows that this is a very important thing that we should be seeking to use in future. The whole transformation of the internet and the ability to download apps and to be uploading stuff into large datasets through a mobile phone hugely transforms the potential for data

collection in that way.

[244] **Mr Short:** Just to give a couple of examples that we had, there was one that we used on flying ants, where you registered when you saw a flying ant using the app. We know they fly en masse because they are a flying version of McDonald's, if you see all the seagulls around—they know that they have to go all together or not at all. The questions were: 'Do they do it once a year?', 'How do they know?', 'Do they do it across the whole country?' So, if you got a national picture, you begin to pick up that it does not just happen once a year—they might do it more than once during the year. There were various things that we did not know about that particular pattern. So, that was done through people registering online when they saw their first flying ant. It was about day lengths, warmth and other usual factors.

[245] Another one was used for sending photos—I am not very techie, but these new phones have GPS registers, which, if you take a photo of a butterfly or insect and send it to people at our university to identify, a map and a log can be created. So, very quickly you are able to get a general level. I think you need to see citizen science as part of the pyramid. It is about those mass data at the bottom. It does not necessarily replace the role of specialists in terms of going to a site and doing those surveys, but it expands the bottom of the mass data. It also engages people so that they can come back to say, 'I fed into that and here's a map and now we have something here that we didn't have before'. You feel some ownership of it, and that you have contributed to it rather than being told about it.

[246] **Mick Antoniw:** The Welsh Government, as I understand, plays a key role within that. What role does it actually play? Is it just a funding role, or is it—

[247] **Professor Dwyer:** It will not be a funding role if it is a seventh framework project; that is a European-funded project. I would imagine that the Welsh Government is involved in steering the project, and potentially in some of its design.

[248] **Mr Short:** It could be involved in some of the design. It could also be about data storing and accessibility to the information where it is held.

[249] **Professor Dwyer:** I am sure that we would be very happy to provide more detail on that, if you like. We are not the experts, but we would be happy to look into it.

[250] **Mick Antoniw:** That is fine, because it is an interesting area. You go on to talk in your paper about the use and dissemination of data. You say that

[251] 'Despite a lot of talk about establishing a spatial data infrastructure for Wales, there is little reported progress.'

[252] So, on the one hand, there is a lot of good work being done, but on the other hand no-one is getting to hear about it or being able to access it. What is the obstacle? What is the problem? What needs to be done to improve that part of the work?

[253] **Professor Dwyer:** We are going to have to talk to Rob about that. We will have to ask him to supply the chapter and verse. I apologise for that; we did not bring three people with us this morning. I would imagine that it will be inter-institutional interfaces between sources of data. I worked very briefly on the LANDMAP data resource, which was huge and potentially hugely valuable. However, there were a lot of issues in respect of accessibility, keeping it up to date and making sure that different bits of the data system could talk to each other in an intelligent way. It is often those things that are the biggest obstacles to effective use.

[254] **Mr Short:** Working in England, I have had issues in our catchment work with

Natural England and the Environment Agency—I probably should not say this, but I am over the border so I am safe—which are two Department for Environment, Food and Rural Affairs agencies, because they were using different mechanisms to store data. They were using different boundaries within catchments.

[255] **Lord Elis-Thomas:** I am sure that it has happened here as well; I hope that it does not anymore.

[256] **Mick Antoniw:** It sounds as if it probably does.

[257] **Mr Short:** I was not going to give you the Welsh example. However, it is about those sorts of issues. For example, spatial data are critical, so when you begin to match those data together, you tend to find those sorts of issues. So, data are being collected in an area and stored in a different area to a different scale. So, a great idea suddenly becomes slightly more problematic, and that it is often the hiccup.

[258] **Russell George:** Mick has done a very good job of pinching all of my questions on data collection and using the public to collect that data. You mention two apps in your paper as well, namely Plant Tracker and Leaf Watch. Part of what we are talking about is gaps in data. Is it a problem having too much data for you to manage and collate? Technology is making information more accessible to you, but are you having too much so that it is bombarding you? Is that an issue?

[259] **Professor Dwyer:** It is a major challenge to design the interface that makes sense of data when they come in. That will not go away, even with all of these applications and things; they are simply generating more basic information. Somebody still has to sort it and make it extractable. Wales is a smaller place than England and there ought to be possibilities for more joined-up working on data. I come back to LANDMAP, which was designed to be a resource that was comprehensive and available to everybody. I do not know what has happened to LANDMAP and whether it is being maintained. I think that Rob has done a little bit of work on one layer. That was potentially a way of integrating lots of different data sets into a unique system, and you made more progress in that respect than had ever been made in England. That was mainly for landscape and biodiversity, and then I think that they added water layers. There is more that could be done. The difficulty might well be that, as apps develop and the technology develops, you will need to start changing the fundamental framework that you use to sort and manage the data.

[260] **Russell George:** Of course, Wales is a smaller place, but there are probably more notspots in Wales for internet connection. I do not know anything about the apps that you have mentioned, presumably people go out into areas and—

[261] **Professor Dwyer:** You need to have your broadband signal working. I do not know how you are getting on with broadband availability in Wales.

[262] **Russell George:** We are getting on with it, but we are not quite there yet.

[263] **Professor Dwyer:** Something that we found in working with farmers is that they are often very keen to record things and to feel that what they notice is being taken notice of. There is a lot of scope for doing more of that kind of thing. You should not just assume that because these people are recipients of public money, they cannot be trusted to say what they see around them in environmental terms. It is an underexploited resource.

[264] **Lord Elis-Thomas:** The other thing that I have learned from my experience of living in and representing farming communities is that they have taken—not just the younger ones, but some of the older ones as well—to the new way of speaking, the environmental message

and the understanding of what they are currently being asked to do in relation to what happened in the past. This is the last time that I will mention my friend on the Migneint who, when I asked him what he was doing, explained to me, 'I'm blocking up the drains, which my grandfather opened up.'

[265] Once people have that understanding, they relate it to the farming pattern. You mention that in one of the answers in your paper. When you discuss Tir Gofal you are analysing why some people signed up and others did not. It had much to do with the farmer's own understanding and that of his family of what they were doing on the farm. Clearly, there is a continual learning there. One of the positive things that came out of the other evidence from Menter a Busnes and the Farming Connect programme was that they were spending as much time listening to the farmers and making it clear to them that they were being listened to as they were in telling them what to do.

[266] **Professor Dwyer:** I think that that is hugely important. There is so much knowledge at the local level that needs to be linked up with the other understandings of the more technical and scientific expertise. It is really about building communities of learning and communities of practice at a local landscape scale—something that is meaningful to the people who live and work in those places. If you can get that right, and say that everybody has something to contribute and that we can all learn from one another, then these hierarchies that exist between different types of knowledge can be dissolved. So much talk in the agri-environment sphere is about the experts knowing what is needed and trying to say, 'This is what we need to push out into the countryside.' Well, it does not work like that and it should not work like that. There is knowledge at the local level, which should be shaping, interpreting and changing the prescriptions from the centre. What we need is to get those mechanisms right so that that information is used and people feel that their long-standing knowledge is valued and respected. Too often it is not, I think, in these sorts of schemes and policies.

[267] **Lord Elis-Thomas:** It will not surprise you to know that I am a disciple of Raymond Williams. The resources for these journeys of hope are all there, we just need to find them again. Thank you for the work that you have done already for the Welsh Government. This is your first visit to this committee, I believe; we look forward to keeping in touch with you as we produce our study.

13:00

Papurau i'w Nodi Papers to Note

[268] **Yr Arglwydd Elis-Thomas:** Gofynnaf i chi nodi'r papurau canlynol: cofnodion y cyfarfod a gynhaliwyd ar 6 Chwefror a'r llythyr gan Weinidog yr Economi, Gwyddoniaeth a Thrafnidiaeth ar yr ymchwiliad i gynigion Llywodraeth Cymru ar gyfer yr M4 ger Casnewydd.

Lord Elis-Thomas: I ask you to note the following papers: the minutes of the meeting held on 6 February and a letter from the Minister for Economy, Science and Transport on the inquiry into the Welsh Government's proposals for the M4 around Newport.

[269] Bydd y pwyllgor yn cwrdd nesaf ar 5 Mawrth pan fyddwn yn craffu ar un o'n hoff Weinidogion, y Gweinidog Cyfoeth Naturiol a Bwyd. Mae'n ddrwg gen i ein bod yn hwyr yn cael cinio, ond dyna sy'n digwydd pan rydych yn mynd i Aberystwyth.

The next meeting will be on 5 March when we will be scrutinising one of our favourite Ministers, the Minister for Natural Resources and Food. I am sorry that we are late having lunch, but that is what happens when you go to Aberystwyth.

Daeth y cyfarfod i ben am 13:01.
The meeting ended at 13:01.