



## Science and Technology Committee

### Corrected oral evidence: Nature-based solutions for climate change

Tuesday 30 November 2021

10.55 am

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Members present: Lord Patel (The Chair); Baroness Blackwood of North Oxford; Lord Holmes of Richmond; Lord Krebs; Baroness Manningham-Buller; Lord Mitchell; Baroness Rock; Lord Sarfraz; Baroness Walmsley; Baroness Warwick of Undercliffe.

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Questions 135 - 152

### Witnesses

The Rt Hon Lord Goldsmith of Richmond Park, Minister for Pacific and the Environment at the Foreign, Commonwealth and Development Office and the Department for Environment, Food and Rural Affairs; Professor Gideon Henderson, Chief Scientific Adviser, Department for Environment, Food and Rural Affairs; James Quinault CBE, Director for Environment Strategy, Department for Environment Food and Rural Affairs.

### USE OF THE TRANSCRIPT

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## Examination of witnesses

Lord Goldsmith of Richmond Park, Professor Gideon Henderson and James Quinault.

Q135 **The Chair:** Good morning, Minister Lord Goldsmith, Professor Henderson and Mr Quinault. Thank you very much for taking the time to speak to us today. We appreciate it.

We have now had several evidence sessions in this inquiry on nature-based solutions for net zero. We spoke to your officials last week. We would mostly like to hear from you about government policies. As per practice, we will address the questions to you, Minister, but feel free to pass a question, if you so wish, to your colleagues.

I would be grateful if you could introduce yourselves for the record before we start.

**James Quinault:** I am the director for environment strategy at Defra.

**Lord Goldsmith of Richmond Park:** I am a Minister in Defra and the Foreign Office, with responsibility mostly for international conservation and climate change.

**Professor Gideon Henderson:** I am the chief scientific adviser at Defra.

Q136 **The Chair:** Thank you very much indeed. Minister, do you have an opening statement that you wish to make before I start the questioning?

**Lord Goldsmith of Richmond Park:** Thank you. As you know, we are a couple of weeks off COP. Our presidency really begins now, and we have a year. In that year, our job is to make good the commitments that were secured at COP. There were lots of things that were different about this COP, not least the ratchet mechanism that allows us to raise ambition over the year. I think that has been underreported, but it is hugely important.

The really important part, which is completely different from previous COPs, is the movement of nature, specifically nature-based solutions, from the very margins of the margins of the margins into the heart of our response to climate change, domestically and internationally. I think the package of commitments that we secured, particularly on forest and land use, is unprecedented. What is powerful is that each part of that package of commitments reinforces the other, with the effect that we have something that, as long as we use the year ahead of us well, will represent a turning point in our relationship with the natural world. That is our hope and our job for the next year.

Q137 **The Chair:** Thank you very much indeed. I will start with the first question, which is basically about government targets to meet net zero, and particularly about the restoration of peatland, net-zero agriculture and tree planting. Do you think that current government policies and resources will meet the targets that the Government have set over the next two or three decades?

**Lord Goldsmith of Richmond Park:** First, the honest answer is that we will always want more. Defra will always be engaged in a friendly and constructive battle with the Treasury to get more money to be able to go further. Secondly, in the last few weeks, as the Environment Bill became the Environment Act, it put into law targets that go much further than anything that currently exists, not least our 2030 biodiversity target. We have a very big job to do to turn things around over the next eight and a half years or so.

We are in a place now where the funding we have received through the nature for climate fund, combined with the additional £135 million we got from the Treasury a couple of weeks ago, will allow us to make the start we need to make in tree planting and natural regeneration and peat restoration if we are to meet the targets that we set ourselves. We are making progress. We have to do things on a scale that we have not done them on before. Based on where we are this season, we think we are on track to meet our England tree target of at least 7,000 hectares per year by the end of this Parliament. I am confident that we will get there. It requires a lot of work, clearly, but we are on track.

On peat restoration, we had very big targets for 35,000 hectares by 2025, and 10 times that figure by 2050. Again, there is a huge amount of work to do, but we have the money we need today to be able to make the start we need before ELM kicks in. Obviously, ELM will be the major funding engine, although not the only one, that will deliver these changes in the years to come.

**The Chair:** The Climate Change Committee has suggested that to meet, for instance, upland peat management by 2045, and not banning the burning of peat, will mean that you will not be able to meet net zero with regard to peatland restoration. Do you disagree with that?

**Lord Goldsmith of Richmond Park:** It is very hard to disagree with the Climate Change Committee. It is the holder of the science, and we listen to the science. Our targets are guided and set by the Climate Change Committee. For example, its view is that our 30,000 hectare tree-planting target will need to look more like 50,000 hectares per year shortly. That is something we are looking at very closely. We have not committed to it, but it is unlikely that we will be able to resist raising our ambitions in line with what the Climate Change Committee suggests on peatlands. They are one of the most valuable habitats we have, not just from a climate point of view but for flood mitigation, water retention during dry seasons, and biodiversity. We have an enormous amount of work to do.

The target we set ourselves is 280,000 hectares by 2050. It is an ambitious target, but we need to look after all our peatlands. There are projects that we are starting now. We have the Great North Bog project, and I can ask my colleagues to talk about that. It is a project to safeguard what we think is a store of 400 million tonnes of carbon, but which is becoming a source of carbon through mismanagement, releasing about 4.5 million tonnes per year and causing all kinds of ancillary problems. We are putting particular effort into those areas of vulnerability.

Could we do more? Of course we could. Should we do more? We will escalate our activities year on year, but I think we are in a pretty good place, given where we started from. I am optimistic that we will get there. With your permission, I do not know whether any of my colleagues want to talk a bit more about the peatland project.

**Professor Gideon Henderson:** I will say a couple of words, and James may wish to augment them. From a carbon point of view, it is true that the peatlands—both lowland and upland—are very significant emitters for the UK, with emissions of something like 17 million tonnes of CO<sub>2</sub> per year. The majority of those come from lowland peat rather than upland peat. Even though lowland peat is a smaller area, it is disproportionately decaying rapidly, so action on lowland peat is extremely important. There is significant ongoing action in government policy in that area, but there is recognition that as we move outwards, certainly towards the 280,000 cumulative target by 2050, attention will need to be given to upland peat as well. Issues such as peatland burning will need attention at that point.

Q138 **Baroness Walmsley:** I declare an interest as a former chair and a current supporter of Botanic Gardens Conservation International, whose work is relevant to this inquiry.

Minister, a few minutes ago you talked about funding. We will be asking the Environment Agency to do a lot more, yet it has a lot less to do it with. It has had some more money recently, but its funding is still well below what it used to be. Are you approaching the Treasury to see if it can provide a little more to enable the Environment Agency to aid in achieving all the targets you have mentioned?

**Lord Goldsmith of Richmond Park:** As you said, additional money has been provided to Defra. Defra's job, as an organisation, is to allocate that. There is no doubt that, for exactly the reasons you have just identified, we are asking the Environment Agency to do more, and likewise Natural England. They will require more resources over time.

I cannot make any announcements in this committee because I would be making them up if I did, but I can tell you that there is very clear recognition in Defra at every level that we need to ensure that the resources are there for those organisations to do the job they are doing. This is an ongoing and continuous conversation. I do not imagine it stopping any time soon.

**Baroness Walmsley:** I am very encouraged by that. Thank you.

Q139 **Lord Krebs:** I declare an interest. I am a scientific adviser to the energy company Drax, which may wish in the future to source material for biofuels from the UK.

The net zero strategy sets a target for 75% of farmers to be engaged in low-carbon practices by 2030, rising to 85% by 2035. Last week, in the evidence from Janet Hughes and Professor Henderson, I heard two things that did not quite fit together. Janet said that in assessing whether farmers were engaging in low-carbon practices we would select "the

actions that have the highest outcomes and that can give the biggest impact based on the science, and also selecting actions to fund that contribute to multiple actions”, which is a slightly odd sentence. She went on: “All of the actions that we fund are based on scientific evidence”.

We will come on to this more in the next question, but we have heard from a range of witnesses, including Gideon Henderson, about the scientific uncertainties, so how can you select the actions that will have the biggest impact when the science is not robust enough to give you that information?

**Lord Goldsmith of Richmond Park:** I will come to the difficult bit first, although they are both quite difficult. I will start with the agriculture issue, which is one of the biggest challenges that we face in relation to net zero. It is the hardest nut to crack. We know that in the technological transition that other departments, on the whole, are in charge of, whether it is moving to clean vehicles or generating clean energy, there are buttons that you can push and there is technology out there that is racing ahead. It is improving day on day. Even today we have had extraordinary news about the jump forward in relation to low-carbon transport.

In land use, particularly agriculture, it is very difficult. We know that we will have to do things very differently. We do not know exactly what that means yet. We are grappling with it. Gideon is in a much better place to answer this than I am. I will give him, as ever, the difficult question in a second. In a sense, Gideon is running the thought process and the research that is happening in Defra to try to understand what changes we will ask people to make, both from a consumer point of view and from the point of view of land management.

It is incredibly difficult. Our target is that 75% of farms will be engaging in low-carbon practices by the end of this decade. We have had some progress. We have had a reduction overall in land use emissions since 1990. It is not a huge reduction; I think it is about 13% or 14%. We need to go much further than that. There is science that is encouraging. There are techniques that we can advance and push. We will use our environmental land management incentives to encourage land managers, as far as we can, towards low-carbon practices and pro-biodiversity practices. There is a lot of uncertainty, and a lot of science still to be done.

I will pause for a second and go to the second question, but if you do not mind, I shall ask Gideon to come in on that one. I will then talk about the scientific uncertainties.

**Professor Gideon Henderson:** The early stages of the environmental land management programme—the SFI programme, as it is termed—aim to interact with a very large number of farmers. The percentage figure that you quoted is the target for that programme. It is trying to achieve quite a broad range of environmental outcomes, including carbon storage positivity but also biodiversity, water quality and air quality.

In that programme, there are known things that we can do that are scientific benefits from activities, such as planting more hedgerows and zero-till activities, to taking obvious emissions from tractors and things out of the system. All of those are built into that system. We can engage with significant numbers of farmers on those types of activities. They equate to a relatively small amount of cumulative carbon uptake as a consequence, but it is a start, and it enables us to meet the quota target for the number of farmers engaged.

As the programme is pursued into its local and landscape phases, we will need to look at new science, which will stretch beyond what we already knew about how you manage land to absorb more carbon and how you manage peat and livestock and make big changes to the carbon budgets. Those will be piloted in the coming years, including pilots specifically on testing approaches to carbon sequestration.

**Lord Goldsmith of Richmond Park:** Can I go back to the uncertainty issue? You are right that the true value of opportunities, but also the challenges, in relation to nature-based solutions is not fully understood. My concern is that that is sometimes used as a bit of an excuse not to do things that we know are good but for which, nevertheless, we cannot properly value or measure the upside.

To stray overseas briefly, we know that if you compare a project involving establishing mangroves on vulnerable coastlines, there is a value in protecting communities. We know there is a value in carbon sequestration, biodiversity and creating breeding areas for deep-sea fish. We know there is a value for people in generating something that can be used as fuel. There are so many benefits.

If you compare that with concrete defences, which is the default position on development overseas and something we need to change, it probably initially provides a better defence for communities. It is questionable, but it probably does. If you look at all the different benefits, I do not think there is any doubt that, pound for pound, investing in mangroves is better than investing in concrete defences. We just do not know exactly how much better it is. It is very hard to measure exactly what the benefits are, but that should not be a reason for us not to do something that we know provides value. We just do not necessarily know exactly how much.

On a slightly more complex level, the same is true here in the UK. We know that water companies are now paying land managers to manage land in a different way to avoid having to clean up pesticides further downstream. We know that land managers are paying farmers to manage wetlands in a way that negates the need to build expensive defences downstream. It is hard to put a number to it. We do not know exactly how much value is being delivered by those acts, but we know there is a value.

My view is that, yes, we need to try to understand. I think the UK can and should—and under Gideon's leadership, I think we will—become the world leader in understanding nature-based solutions and how they can

be used and rolled out across the world. We have exciting plans for that. Nevertheless, we know enough to be getting on with this stuff now.

Q140 **Baroness Rock:** I would like to continue the point about looking at the scientific baseline and monitoring. I have a couple of questions. We have heard that it is very difficult, as you have just been saying, to successfully understand what that baseline and monitoring is, particularly for land managers. Could you give a little more technical detail about where you are in the process of understanding how that monitoring will progress over the seven-year agricultural transition plan? I am particularly interested in the agriculture side.

I declare an interest. I am a director of a farming company that has actually applied for the SFI pilot scheme. I believe I am one of about 900. I would be interested in an update on where you feel that pilot scheme is going.

I am also particularly interested, Minister, in this. There are, as you are aware, a considerable number of tenant farmers in the UK who are unable to enter the ELM schemes through their landlords. What action are the Government taking to ensure that it is the active land manager who will be supported for the very important objectives that we are trying to achieve?

**Lord Goldsmith of Richmond Park:** In relation to ELM, to start with—it is great that you are part of the pilot—we will have to learn on the move, because we are doing something completely different. I do not think that any country has attempted what we are doing in a wholesale switch from one system to another. It is a big global campaign of ours to try to get other countries to join us in this. We do not pretend that we have all the answers, which is why we have the pilot process that you are a part of.

I will ask James to come in on this in a second. I think that in the next couple of days we are about to provide a new layer of certainty on the progress of ELM and the criteria that we will be using, but it will not provide all the certainty that farmers currently want. There is concern that that uncertainty is inhibiting some farmers from making certain decisions, particularly in relation to planting trees. We are delivering that certainty as quickly as we can but without wanting to make errors on the way. It is difficult and complex. There are so many competing demands. We want to try to do everything we can to get it right.

James will give us an update on ELM in a second, and on the point about tenants. Just going back a second, there are huge knowledge gaps. At the same time as trying to rejig the incentives system and setting targets, which require real movement on our part because they are stretched targets, we are trying to fill in those knowledge gaps. For example, we are developing an England peat map, using all the available technology and science that we have to understand where the opportunities are, where money needs to be spent and where the particular focus of the department needs to go in order to deliver the

maximum solution. We have a good idea, but it is certainly not a comprehensive view of the work that needs to be done.

It is easier when it comes to trees. Of course, you can plant the wrong tree in the wrong place, and there are all kinds of examples where that has happened in the past, but at the same time the majority of applications to plant trees are relatively straightforward. It is either appropriate or not appropriate. The vast majority of new trees being planted with public money are native, broad-leaf mixed woodlands of the sort that we know provide multiple benefits. It is a very small proportion over the last few years, and the trends, which look as though they will continue in that way, are going toward conifer plantations. Even there, they are mixed conifers and mixed ecosystems. That is less of a struggle and less of a challenge than the peat work, however.

James, can I ask you to talk about ELM? You are overseeing the peat plan, so maybe you could fill in some gaps on that as well.

**James Quinault:** Thank you, Minister. The pilot, as you know, kicked off in the summer. The first pilot agreements went live earlier this month. It is very early days, but we have already learned a lot about how this works from farmers' experience of making applications. As the Minister said, in the next couple of days we will say more about what farmers will need to know to prepare for the SFI when it launches next year.

Q141 **Baroness Rock:** This supplementary is particularly about tenant farmers. Minister, as you know, over a third of farmers are tenant farmers who cannot plant trees. Most tenancy agreements prohibit a tenant farmer from planting trees, and you have just talked about the importance of trees. I am particularly interested to understand what Defra is doing about farmers who are working the land as tenant farmers and want a sustainable farming environment but are unable to join a number of the schemes. That is just in the SFI, not even coming on to the other two schemes that are coming down the track.

**Lord Goldsmith of Richmond Park:** One of the opportunities we have is that we can talk to some of the big institutional landowners. We have been talking to the Church of England, for example. Did you say you were with it in your declaration of interest? Anyway, we have been talking to the Church of England, which is a very significant landowner with a lot of tenant farmers, trying to understand what would need to happen in order for its tenants to be able to take part and engage in some of these schemes, whether it is the England trees action plan or being part of ELM as ELM goes forward.

I will not pretend that we have resolved those issues at the moment, but we know that tenant farmers need to be part of the schemes because they represent a very large amount of UK land. We will not be able to meet our targets unless they are fully and properly involved, but work remains to be done.

That was a bit of a clunky answer. Can you give us an update on that, James?

**James Quinault:** No, I cannot. Sorry.

**Lord Goldsmith of Richmond Park:** This is ongoing work in Defra. We know it has to be resolved. It is not being left to the side, but I am not going to pretend that we have the answers yet.

**The Chair:** Thank you.

Q142 **Lord Mitchell:** Good morning, Minister. Before I ask you a question on private finance, I would like to make an observation. During this whole process, we have had many witnesses talk to us. To me, there is one word that comes screaming through. You have used that word yourself today; it is "uncertainty". There seems to be lack of clarity and lack of a plan and many things are still in the air, yet at the same time we are talking about large amounts of private financing going into these projects. All I would say, as a businessman myself, is that nobody puts money into anything unless there is certainty. With many of the things what is absolutely required is greater certainty on all these projects.

Coming to my question, core to the Government's strategy for nature is mobilising private finance into nature recovery, including through new carbon and ecosystem services markets. In the absence of firmer incentives or sanctions for businesses to achieve net zero, it is not clear what benefits accrue to companies for buying carbon credits; nor is it clear that those market solutions will scale up to deliver the necessary funds. How will the Government ensure that the market mechanisms deliver what is promised, particularly in view of the uncertainty?

**Lord Goldsmith of Richmond Park:** We are right at the beginning of the emergence of a whole new market, whether it is ecosystem services, carbon credits or something broader. We know that the gap between where we are globally and where we need to be is probably in the region of £500 million, £600 million or £700 million a year, so that is a gap that we will have to fill. It means that, even if we were to give all the world's aid money exclusively to nature restoration and low-carbon transition, we would still be only 25% of the way. The rest will have to come from private finance. Part of that will be by shifting the incentives, as we are doing with ELM. Governments spend \$700 billion a year subsidising land use, often bad land use. A big chunk of the challenge will be secured, we hope, through persuading countries to try to do what we are doing with ELM, but there will still be a gap, and that gap will be filled by private finance.

The certainty that you and others crave cannot be delivered initially in the immediate term because it does not exist. We know, for example, that the introduction of biodiversity net gain a couple of weeks ago through the Environment Act will undoubtedly create huge opportunities for people to skill up and take advantage of this new market. Through government, we have effectively invented a new market, biodiversity net gain, which will result in very significant sums of money transferring from the private sector into nature restoration, tree planting, peatland management and low-carbon activities in relation to land use. Exactly how that manifests and what it will look like in a few years' time, I do not

think we know. We know that the opportunities are there as of the Act becoming an Act, and we know that that will result unavoidably in very significant sums of money flowing towards nature restoration.

In a sense, it will be for the private sector, but working with NGOs, Natural England, the Environment Agency and organisations not associated with the Government, to identify and take advantage of the opportunities. That will manifest in many different ways, but I do not think it is necessarily possible for government to predict exactly how it will work out. The opportunities will be different depending on where you are in this country.

**Lord Mitchell:** Nothing is 100% certain. If you are in business and you are making investments, you absolutely know that nothing is 100% certain. What gives you confidence are clear plans, clear objectives and a very clear pathway to getting to that point and minimising the risk. I do not feel that in what I have been hearing at all. I wonder whether we will get to where we want to.

**Lord Goldsmith of Richmond Park:** I am not sure I agree with that. We do not know exactly what cars in 10, 15 or 20 years will look like. There is even a possibility that we will switch in some way towards hydrogen, away from the cars that currently dominate low-carbon vehicles. Any decision of that sort is a punt on the part of businesses. We do not know what battery storage will look like in years to come. There is always uncertainty. Things happen that politicians and even the private sector fail to predict.

There are elements of real certainty. We know that vast amounts of money will flow into nature restoration. Therefore, it is not a huge punt on the part of elements of the private sector to brace for that and look for opportunities. There will be developers who have no idea how to fulfil their net gain obligations. They will have to find partners who know how to fulfil those obligations, so there is an opportunity for a whole new type of business that does not really exist in this country at scale at all but will have to.

We do not know exactly how this will pan out. We do not know exactly what it will look like, but we know that that opportunity is there. In a sense, it is for the private sector, probably working with the kind of conservation groups that many of us here are members of and support, to design the outcome of biodiversity net gain. They will be part of that process. They will lead the process in a particular direction. I do not think that government necessarily can do that.

I am not convinced that there is not enough certainty to get going. I mentioned biodiversity net gain. That is only one example, of course. We had 100 significant UK businesses at COP committing to go nature positive by 2030. We know that they cannot all do that by addressing issues in their own supply chains. They will have to demonstrate that they have a pathway for that. They also have to demonstrate that they have a pathway to net zero, but they will not be able to get the whole way there by 2030, so they will have to engage, loosely speaking, in off-sets. That, too, will provide a huge opportunity for entrepreneurs,

businesses, NGOs and conservation organisations to tap into and ensure that the money is spent in the right place and that it is spent well.

It does not strike me as a huge gamble on the part of the private sector to recognise that opportunity; it is not that prescriptive and we do not know where it will go. That also provides opportunity for organisations and companies of the future to determine the answer to those questions themselves. It feels to me that the signals are pretty clear. We know the direction of travel even if we do not know exactly what the road will be made of.

I do not know if either of my colleagues wants to come in and provide a more scientific answer.

**James Quinault:** Perhaps I can add to that, Minister. There clearly are some things that the regulatory framework needs to put in place to allow this to flourish, and the Government are working on all of those. A first requirement is that there be regulatory certainty so that investors can have confidence. We have that through the Climate Change Act, and now, through the Environment Act, we are extending it to nature recovery.

You need clear standards under those objectives that are verifiable and authenticated and can be used as the basis of your market. We have those for woodland now and increasingly for peat. We are implementing them for biodiversity net gain and are investigating opportunities to do the same for soil, saltmarsh and other ecosystem services.

You need a pipeline of investable projects that demonstrate that this is possible and will allow you to build revenue at scale. The Government have taken a hand in that, first through the green recovery challenge fund and now through the natural environment investment readiness fund, which is a demonstrator project that shows how this might work. In due course, there will be the big nature impact fund, which will show how you can take those demonstrator projects and build to the next level. We have a proposal out for that now.

As things develop, of course, you need a trusted market infrastructure to support them. We have that now for woodland, and increasingly for peat, as I say. We will have it for BNG. We are, through the natural environment readiness fund, looking at how we might build such things for a broader range of services. There needs to be a framework for this to lift off, and the Government are working on all those elements now.

**Professor Gideon Henderson:** I will come in very quickly on the scientific side. I think your question was really targeted at policy and regulatory uncertainty, but it is of course important to recognise that there is scientific uncertainty in carbon budgets and biodiversity net gain. We need to be careful to use programmes incentivising green finance for programmes where we have certainty or confidence in the additionality and permanence of the change that happens. That is why areas like peatlands and woodlands are mature, and it is sensible to have a robust policy and regulatory frameworks for those. In other areas, including

some of those that James mentioned such as saltmarsh and soils, we do not yet have the scientific certainty to roll out regulatory programmes.

Q143 **Baroness Walmsley:** Minister, how confident are you that companies will not buy off-sets because it is easier and puts less focus on reducing their own emissions and those of their supply chain?

**Lord Goldsmith of Richmond Park:** It is for us to ensure that we have high integrity at both ends of the market. We know that there have been questions in the past about the kinds of projects that companies invest in. "Regulate" is the wrong term, but it is not difficult to identify high-integrity projects and lesser integrity projects. Where there has not been enough focus until recently has been on the demand side.

I think we have taken quite a big step towards addressing that. For example, the UK played a big role in the creation of LEAF. I forget what it stands for, but LEAF is a new £1 billion global fund. It is a public-private partnership, mostly private. The private bit is the bit that is growing. As I said, it is £1 billion. We think it could be £10 billion by the end of next year and £20 billion by the year after. In order to qualify to be part of LEAF, companies do not just have to demonstrate a commitment to net zero by 2050 at the latest; they have to provide a pathway showing how they intend to get there. If they do not, if they cannot and if they are not signed up to the science-based targets initiative, they are not considered to be of sufficiently high integrity and therefore will not take part.

We recognise that there are companies that will not be able to do everything they need to do internally, but they need to show seriousness about it. They need to show that, wherever they can make a change, they are making a change or are at least planning for that change. The rest they can off-set through investing in high-integrity projects around the world.

I do not think it is that difficult, but it is important that with the schemes that exist and where there is any kind of government involvement, which will apply to most of them, that question is asked at every step of the way, and that the barrier remains as high as it is currently.

I completely understand the premise of your question. This concern has been expressed many times, including by me, but I think we can overcome the problem.

Q144 **Baroness Manningham-Buller:** Minister, in some of your answers you have already touched on co-benefits, which I want to ask about. Is there a danger that in the headlines for trees, peat and other codes, which, as you say, are mature and well advanced, the value, which is not recognised by the carbon markets, of the co-benefits—whether protection for the environment, health, tourism or whatever; the human activity—are minimised or overlooked, or their value distorted?

**Lord Goldsmith of Richmond Park:** Yes, absolutely. I think it is a huge risk. In a sense, that is one of the reasons why we pushed so hard in the run-up to COP to try to break down the barrier between nature and climate change. If you judge a project purely on the basis of its carbon

sequestration value, you can end up with perverse policies. You end up with conifer plantations that are of no particular value to biodiversity. You have trees in the wrong place and it can distort policy.

In all our schemes, whether it is the England trees action plan or the England peat action plan, or our net zero commitment in law now combined with our 2030 biodiversity commitment, it is almost impossible for the UK to pursue actions in order to meet those targets where reference to those other targets is not also required. From a UK point of view, it is no longer possible for us to see things purely through the lens of carbon sequestration or reduction. I think that biodiversity values, flood prevention values and water retention values—all the different co-benefits that we know nature-based solutions can provide—will be in the assessment criteria of any project that we are involved in from a government point of view.

When it comes to recognition of those co-benefits by the private sector, that is harder. One initiative that we are working on at the moment, and I met some of the key figures in this very room yesterday, is to talk to WWF and the World Resources Institute, which have been given an enormous grant by the Bezos Earth Fund, to expand on and improve the science-based targets initiative, with a view to incorporating fully into it the recognition of nature, the role of nature and the importance of biodiversity, so that when companies sign up to their net-zero pathway, they are not just signing up to the carbon question; they are actually signing up to net zero, combined with nature restoration and all the other issues that we have been talking about in this committee. That is something that we very strongly support and will back.

**Baroness Manningham-Buller:** Thank you for that answer, which is encouraging, but how far do we have to go with the private investor in understanding biodiversity? How much more is there to do on that?

**Lord Goldsmith of Richmond Park:** Probably a very long way. The reality is that the more we understand—Gideon knows more about the science than I do, obviously—and look at the steps that are needed to be taken in order to get to net zero, the more obvious it is that you cannot do that without nature. It is not possible. There is no credible pathway to net zero that does not involve nature.

For a company to sign up to net-zero commitments and then to go through the process of developing a pathway for achieving net zero, it is very unlikely that that pathway will not include an emphasis, a focus, on nature. That may not have been the case a few years ago, but it certainly is the case today. There is general recognition now, which did not exist even a year or so ago, that the nature question and the climate question are really one and the same.

That is increasingly reflected in our policy. It is reflected in the policies of other Governments around the world. So too is it reflected in the commitments that we are increasingly hearing from the private sector. For example, GFANZ—I forget what that stands for—was the organisation that was instrumental in delivering a really big commitment from the financial institutions in the run-up to COP on alignment with net zero and

with the Paris goals. A year ago they were not talking about nature, biodiversity or even about forests, but by the time we reached COP that was very much the thread that ran through the commitments that they were securing from financial institutions. It feels to me that things are moving pretty rapidly in the right direction.

If I could make one further point, at the beginning of our presidency of COP—I am not sure what the term is before we become a president—we were lobbying hard the multilateral development banks such as the World Bank, as well as the smaller ones, to align with Paris. It was not just to have a bit of extra funding for climate but to ensure that their entire portfolio was aligned with Paris. By the time we got to COP, that commitment had become alignment with Paris but also alignment with nature, so that their entire portfolios at least do no harm to nature but, ideally, are nature positive. That is a huge step in the right direction. It feels to me that we are moving pretty rapidly in the right direction.

**Baroness Manningham-Buller:** Lady Walmsley asked a bit about trade-offs. Land use, carbon sequestration and co-benefits will surely be areas of some difficulty. What mechanisms do you think you will need to develop to work out those trade-offs? There will be quite a few complex ones, I suggest.

**Lord Goldsmith of Richmond Park:** Yes, there are trade-offs. Certain land lends itself to certain activities. If you have a steep slope running down to a water system, the case for planting trees to try to prevent erosion, retain water and minimise the risk of flooding is pretty powerful. There is lots of land where there will be competition for use of that land.

A central challenge for Defra, and indeed institutions, organisations and Governments around the world, is how to reconcile the need to produce food with the protection of nature. We know from examples all over the world, not least examples we funded through Defra, through the former DfID and now the FCDO, that that is possible. There are plenty of ways in which agriculture can be made more effective and more efficient and require less land, and can be organised in such a way as to provide more room and more space for nature.

Lots can be done, but most of it is the exception and not the norm. Our job is to move those best practice examples into becoming the norm. If we do not, we will not solve the issues relating to deforestation and land use degradation, and ultimately we will not be able to tackle climate change. We know it is possible.

Gideon will come in, but just before he does, one of the other big commitments that we secured at COP, which directly addresses the question that you just asked, is from the 12 biggest commodity buyers in the world, including COFCO and Cargill. COFCO is China's biggest buyer. It would not have been able to make the commitment that it made without approval from the Chinese Government. Its commitment was to align its buying of commodities not just with Paris and 1.5 degrees but with nature. That is huge and it sends an incredibly powerful signal. That is why, in fact, some of the countries that were very reluctant to sign up to our pledge on deforestation, and frankly had flatly refused to sign up

to that pledge, found themselves forced to sign up to it. If the biggest buyers of their commodities are aligning with nature goals and 1.5 degrees, either they follow suit or they lose their market. It was a very powerful signal sent by the market.

That requires commodity-producing countries to produce those commodities in a way that does not degrade land and does not contribute to deforestation. Again, we know from examples all around the world, not least west Africa, the Ivory Coast and so on, that that is possible.

**Professor Gideon Henderson:** I want to give a positive example of where the tensions you are referring to have really been thought through. I go back in particular to the agricultural policy—the environmental land management—and the SFI, the sustainable farming initiative, which have looked very explicitly at balancing what benefits you can get from changing land practice, the benefits from carbon, biodiversity, water quality and air quality. The incentives that are paid through that scheme are designed to maximise the benefit and see through the tension that you are completely right to ask about. There is limited land and we are trying to get a lot of environmental benefits from it. That example has been very concrete in the way it has been rolled out. It is a philosophy that runs through other aspects of policy-making.

Briefly, in answer to your previous question, more broadly I think there is a challenge on biodiversity as a co-benefit, in that it is not yet seen by companies or the public as an existential risk in the same way climate is; we do not have Extinction Rebellion for biodiversity yet. There is existential risk from biodiversity. There is a leadership challenge for Governments and multinationals to step into and communicate the importance of acting on that. Some of the activities that Lord Goldsmith has been talking about are important for demonstrating that leadership, and moving the public and companies in a positive direction.

**Baroness Manningham-Buller:** Thank you very much.

Q145 **Lord Sarfraz:** Minister, if we want the voluntary off-set markets to work for our farmers, we need to be able to measure and monitor carbon at scale. This is a tech opportunity for our entrepreneurs. What is your department doing to encourage entrepreneurs, as well as the next many dozens of technology unicorns that will be in the climate space, and to give them the rallying call? How are you encouraging them and venture capitalists, et cetera, to look at this much more carefully?

**Lord Goldsmith of Richmond Park:** That is a really important point and you are right to identify that it is a huge opportunity. From the landowner and land manager's point of view, there will be opportunities to supplement income, to earn more money from a different way of managing land—in addition, obviously, to the primary function of farmers to produce food. The opportunities for landowners and land managers are now pretty clear, I think, although I refer back to my answer earlier about the uncertainties with ELM, which I acknowledge. The more those uncertainties are addressed, and the more quickly they are addressed, the more obvious and clear it will be to landowners and land managers

how they can maximise the benefits from the land they are managing and earn as much support as possible. From a landowner's and land manager's point of view I think it is relatively clear.

From the entrepreneur's point of view, you are right. There are companies already emerging that focus specifically on measurement and understanding. At a global scale, there are satellite monitoring companies, whose services we will undoubtedly have to depend on when it comes to the kinds of arrangements we reached with forest countries at COP. If countries are being paid on the basis of protecting land, we need to know that that land is being protected.

A few years ago it was all pretty difficult, but the technology exists today such that you can assess the value, health and status of areas no bigger than 5 square metres. You can tell whether trees are native, whether they are healthy, and whether they are at risk in a way that simply was not possible before. That is even more valuable in marine protection, where we have created, effectively, paper parks that can now be policed, and enforcement is possible as a result of the technology that exists. On the macro scale, those opportunities are there, and they are being tapped into.

On the micro scale, again I refer to the answer I gave earlier. There will be enormous opportunities for companies to do the work on behalf of developers and on behalf of some of the companies that have signed up to become nature positive but where they will not be able to do the work themselves.

On the question of how Defra or the Government are helping that process I defer to Gideon, because he knows more about the technology than I do.

**Professor Gideon Henderson:** I agree with the nature of the question: there is a need to measure and monitor in ways that we have not done before, and there is also a real opportunity. Minister Goldsmith has mentioned satellite technology, but that is for land surface and gases in the atmosphere. We know there is potential from drones. We know there is potential from new forms of sensors and from innovative uses of DNA measurement. There is a ripe time for transformation in the way we monitor carbon and biodiversity in the environment.

A first activity of the Government to move into that space is the farming innovation programme that was launched recently. It is only marginally to do with this question, but it is a fairly substantial amount of innovation funding to encourage new practices on farms to help increase productivity, and achieve environmental goals, including net zero.

There is ambition in Defra to go much further in running innovation incentive programmes that might touch on venture capital or other forms of encouragement to small and medium enterprises in post-farmgate food supply systems and in environmental services and environmental management. We recognise that there is significant opportunity in that area, and in the next three years we expect to do more programmes there.

**The Chair:** Thank you very much.

Q146 **Baroness Warwick of Undercliffe:** Minister, my question is about skills and training. You talked earlier, rather enthusiastically I think, about encouraging people to skill up, but we have heard evidence from organisations such as the CLA and the NFU that there is a significant lack of advisers, skills training and on-the-ground expertise to enable land managers to plan NBS interventions. For example, the Royal Forestry Society identified skills shortages and declining enrolment in forestry courses, and on peatland restoration we have heard about the lack of skilled contractors who can carry out the work.

Professor Chris Collins was worried about the lack of advice and referred to what he called "a fantastic advisory service" that we had previously. He said, "A lot of farmers cannot afford consultants, and if we are really going to change behaviour ... We need to think about a national advisory service in some capacity". Could you tell us how the Government will ensure that advice, training and skilled assistance are available for land and marine managers to scale up to nature-based solutions?

**Lord Goldsmith of Richmond Park:** Thank you very much. This, too, is a massively important area. We are at the beginning of one of the greatest transitions this country has ever been through. It is on a par with the Industrial Revolution, and that kind of transition will necessarily create huge opportunities for new sectors and huge opportunities for jobs, and for the entrepreneurs that Lord Sarfraz was talking about earlier. It would be wrong to pretend, at this stage, that the skills that will be needed in the medium and long term have been fully mapped out and identified, and that our workforce of the future, based on where we are today, will be ready for that challenge.

What are we doing? Obviously, the Department for Education is the department that holds the pen on this. I spoke to the Secretary of State just a few days ago about Defra's contribution to filling in some of those gaps. Within our department, there is huge change happening. There will be skills when it comes to our England trees action plan, whether it is peat restoration, activities associated with the shift to the environmental land management system, or conservation work as part of biodiversity net gain and other initiatives.

Our contribution to the process is to try to map that out for the Department for Education, at its request, but it is something that Defra is doing anyway, so that we have as educated and informed an idea as possible of where we think those opportunities will be, based on current policies and where we think things are likely to be. There are estimates and a bit of guesswork involved, but at the same time we know the direction of travel, so we know where many of the opportunities will be, in a way that the Department for Education would not know.

That process is happening in our department and across government. The Department for Education is asking each and every department of government to try to figure out what low-carbon transition and the 2030 nature targets mean for skills and training for the future. BEIS is very

much involved in that and Defra is working with BEIS and the DWP. There is a cross-cutting delivery group trying to ensure that we are not duplicating each other's work, and that the information that we provide to the Department for Education is as comprehensive and coherent as possible. That is at government level to try to map out where things will be.

A number of initiatives that we are involved in are specifically about skilling up the workforce of the future. In our trees action plan, for example, through the Forestry Commission, one of our delivery partners, we are setting up the forestry skills forum. The Forestry Commission is developing a skills action plan. It is much better placed than we are to develop that plan. That will inform us about what kinds of opportunities and gaps there will be in the future. There is the England trees action plan, which commits us to working with the Department for Education on creating what it describes as training routes to upskill the sector—for example, through traineeships. There is the BEIS SME climate hub, which I am not involved in; I do not know whether either of my colleagues is. That is also about trying to map out where opportunities are in the future and ensure that we have the right mechanisms in place to provide training.

Defra is part-funding the Institute for Agriculture and Horticulture, which is also aimed at trying to understand what skills will be needed and to ensure that the training happens to provide the workforce of the future in relation to landscape management in the broadest possible sense. There is a lot of activity, but we are not there yet, and much of it is about trying to understand where we think skills shortages will be in the future.

**Baroness Warwick of Undercliffe:** That is encouraging in the sense of the number of departments actively involved, but what is your timeframe for all this? I am thinking about the educational establishments that will need to respond to this new demand and the length of time it takes to develop courses, and so on. Another uncertainty for them is the lack of certainty about the numbers and the likely demand. Could you say something about timescale?

**Lord Goldsmith of Richmond Park:** The urgency is now. This work is happening now. On the forestry skills forum, for example, the commitment has been made. The Forestry Commission is establishing that at the moment. When will it be up and running? I do not know, but I will come back to you on the timescale for the initiatives I have just mentioned.

This work is not future work. It is all happening at the moment and the commitments have been made—the peat action plan, the trees action plan, et cetera—and the work is under way. I will have to come back to you on when that translates into new people entering into the market with the relevant skills, but my hope is that we will be able to do so very quickly, because the pressure is now. If we are to hit the 2030 targets on biodiversity, we cannot wait until 2028 to have people doing that work.

**The Chair:** Thank you for letting us have more information later on.

**Q147 Lord Krebs:** My question follows on from what Baroness Warwick asked about and, indeed, from your response, Minister. I want to focus briefly on forestry. When I last looked at it, the number of universities in the United Kingdom training people in forestry was very small—Bangor, Aberdeen and a small handful of others. Is it envisaged that there will have to be more forestry departments? Forestry departments used to be more numerous, but they all closed down. Are you envisaging that universities will open new forestry departments and that forestry degree courses will expand? You will need people at degree level to help to train those who are at a more technical level.

To underline the importance of knowledge of forestry, I refer to tree diseases and the fact that in western Canada, in British Columbia, 58% of sellable pine forest has been destroyed in the last 30 years by mountain pine beetle, so all our plans for reforestation of England could go awry if we do not have the expertise to understand future tree diseases as well as other aspects of tree health.

**Lord Goldsmith of Richmond Park:** That is a very powerful lesson, or a warning against countries being too dependent on monoculture. There are tree diseases that we worry about coming to the UK, which probably will come to the UK no matter what we do and could decimate species that dominated in previous years. Certain types of conifer are particularly susceptible to those diseases. We have increased funding as part of our overall preparedness in relation to tree diseases. I know that is not the specific question you asked, but we recognise the threat. For me, the lesson is to try to maximise biodiversity as much as possible so that we reduce vulnerability.

In answer to your question about forestry, we do not just need forestry experts; we need arboriculturists, we need ecologists. Given what I said earlier about the funding mostly going towards the creation of mixed British broad-leaf woodlands as opposed to conifer plantations, quite a wide variety of skills are needed, but yes, we need more provision of education, in more universities. Because of the targets we set ourselves, combined with the targets that have been set in Wales, and in Scotland in particular, we know that there is cross-party consensus on the need for us to plant more trees.

There was an arms race on this before the last election, quite a healthy arms race in many respects. It is inconceivable that those trends will not continue, so we will need more skills in that sector. Universities or colleges will have to respond to that. That direction needs to come from the Department for Education, and that is what it is doing. It is not just about forestry. There are many different areas where skills will be needed, which is why we need a single, central, coherent government assessment of those skills, which would include the intel provided by Defra on issues like those that you have just raised. That is part of a much bigger package. Gideon, you look as though you want to say something.

**Professor Gideon Henderson:** To briefly augment the previous comments, I think the lack of forestry skills is recognised as a problem.

They have deteriorated in the country over recent decades. There are still significant strengths in universities around the UK, although mostly focused on tropical forestry environments rather than domestic, and the list you read, Lord Krebs, was probably of the main departments actively involved in domestic forestry.

We have recognised the real need to turn that around. We get some of our active forest research from the institute, Forest Research itself, working with it to ensure that we have adequate training to meet our Defra needs. More broadly, there is a need for increased training at all levels, including undergraduate and lower level, and at research level. We are working with UK Research and Innovation to identify ways to approach that at a more senior level, as well as the approach of the Department for Education.

**Lord Goldsmith of Richmond Park:** The skills hub that I mentioned earlier will not be a site-specific hub. The forestry skills hub is there to identify where scaling-up can happen in educational establishments all around the country. It is the Government, the sector, the education providers; the job of the forestry skills hub is to try to work out where scaling up can happen.

**The Chair:** Thank you.

Q148 **Baroness Walmsley:** Minister, in your answer to Lady Warwick you focused on new entrants to the sector and the training up of people with the right skills for the future kind of land management. Can I bring you back to current farmers and current land managers? They have been trained in a completely different way and are being asked to manage their land in a completely different way. They need help and advice on the benefits to them and whether there is a continuing income for them in changing the way their land is managed, how to do it, and how to keep it maintained so that those benefits continue in the future. What sort of advice is there for those people?

**Lord Goldsmith of Richmond Park:** You are right. I will preface what I say by making the point that farmers, on the whole, are in a line of work that requires them to be able to adapt, for all the obvious reasons. There are few areas where people working in the sector have as diverse a skill set as farmers, particularly small and medium-sized family farmers. It is the nature of the job.

There is uncertainty on their part as regards what they need to do differently to ensure that the flow of income they depend on continues. It is not all from the private sector, as we know; there is heavy subsidy dependence. What do they have to do differently to ensure that that flow continues? The concern is not that they do not have the skills to do it, because on the whole they do. We are talking about land management, and that is bread and butter for farmers.

The concern is about the lack of understanding of what is needed on the land, and that question is partially addressed by the catchment-based approach. A catchment-based approach is not each farm for itself; you have collective efforts and catchment-based goals that are recognised. I

will come to James on what Defra is actively doing now to talk to those landowners and small and medium-sized farmers so that they are prepared for the shift when it happens.

**James Quinault:** I mentioned earlier the pilot on SFI that opened in November and that will be very valuable in gathering that experience. I mentioned, too, that there will be an announcement later this week on the pathway into SFI and what farmers will need to be able to do to benefit from that. The intent of SFI is that it is not something complicated where you need agronomic advice to be able to implement it. The plan is simpler standards that are easier for people to follow. As we move to the higher tiers—landscape recovery and local nature recovery—there will need to be more advice and help for people in plotting a way through that, and in tailoring a plan for their farm.

**Lord Goldsmith of Richmond Park:** It is fair to say that there is a lot of engagement already between Defra and either individual farmers, land managers and landowners or their representative bodies. I hope you would agree that there is masses of engagement between Defra, the NFU for example, the CLA and other organisations. That obviously will have to continue, and as ELM becomes more real we will have to scale it up.

Q149 **Baroness Walmsley:** Following COP, it is clear that climate policy must move from targets and pledges to a proper plan, and a plan that adds up. Of course, as you admitted during the Environment Bill, land needs to be multifunctional; I think that was the way you put it. There are multiple demands on land, as a sink for carbon, a food source, a haven for nature, and somewhere to build homes and businesses.

Do you think the UK needs an overall land use strategy to work out how the different demands add up? Do you have that strategy, or will you accept the Climate Change Committee's figures? For example, in its modelling it suggests that we need to reduce food waste by 20% and reduce beef and dairy by 20%, taking as much as 22% of agricultural land out of production for carbon sequestration. Will you accept its figures or do you have your own?

**Lord Goldsmith of Richmond Park:** Those figures are estimates and they are based on current knowledge. As Gideon pointed out in answer to an earlier question, there is a lot of uncertainty about how to reconcile all those different tensions. That is true here and it is true around the world. We know from examples of best practice what is possible, but there remain huge uncertainties. I am very happy to accept the thrust of what the Climate Change Committee is saying, but we need to have our own data. We need to figure out how we think the tensions can be reconciled. Whether it is in an overall land strategy or not, we need a strategic approach to land management.

It is obvious that we need a strategic approach, but an example of where that became particularly obvious was in the creation of the England trees action plan and the peat strategy. We had two sets of teams creating plans that massively overlap, and as a consequence of that obvious overlap we decided to align the two strategies, which suddenly made

perfect sense. We have a strategy now that deals with much of what we will be doing with the nature for climate fund.

Just a few weeks ago we legislated, as you know, for the local nature recovery strategies that will become a core part of our delivery of the 2030 biodiversity target. That is not something Defra can deliver alone. There, too, it is obvious that there is massive overlap between our ambitions, and what we can do, and the new department for levelling up. There will be discussions with the new Secretary of State and his team about what we need to do in the context of the planning changes to ensure that we can deliver and give meaning to the aspirations that we legislated for in the Environment Act.

There is masses of overlap, but I am not convinced that we need a single land strategy. I think we need a strategic approach whereby the different parts of what we are doing fit together. It is our job principally but not exclusively in Defra to make sure that we have a single coherent approach.

**Baroness Walmsley:** In an earlier question, you mentioned that we need to make agricultural land more productive. Obviously, if we are taking productive land out of producing food to grow trees or restore peat or whatever, that is what will happen. We need to avoid offshoring. A lot of our witnesses have been very concerned about the danger of offshoring for our food production. Dr Lynn Dicks suggested that “nowhere in the world is achieving” the kind of average yield that the current policies we know about will require. How will we produce more food on less land? How will we increase production by that quantity?

**Lord Goldsmith of Richmond Park:** My job is mostly about international climate and conservation, so the examples I can think of mostly come from overseas. Much of what I am talking about today is trespassing into the portfolio of people like Rebecca Pow, so if you do not mind I will talk about some of the international examples that I have seen or am familiar with, where exactly that has been achieved.

In Colombia, for example, we have funded through BEIS, with Defra involvement, schemes to make beef production more productive. There are big questions about the overall consumption of beef, and no doubt that is also on your mind. In the meantime, we are producing an awful lot of beef, and that is a big part of why forests are being cut down. We know from the work that we have funded that you can reduce the amount of land required to produce beef, even if you include the inputs. I am not talking about having animals in intensive barns being fed by something that is grown at the expense of forests overseas. I am talking about extensive grazing, grass fed rather than grain fed, where the same amount of beef can be produced on land that is around 20% of the size of the land currently taken up on average in places such as Colombia, and through the Amazon, at the expense of forests, at enormous scale. We know it is possible. There are many such examples of agriculture being more efficient and therefore requiring much less land.

One problem is that a lot of the land encroachment associated with agriculture is illegal. It is not a matter of ownership. If you are a farmer,

landowner or land manager with a specific piece of land that will always be there and you will always own that land, you tend to look after that land with a view to how your kids and their kids and so on might be able to benefit from that ownership. If you are encroaching illegally into forest, the moment you have used the fertility that exists, the incentive is to keep on encroaching. It is incredibly inefficient, not to mention disastrous, and a big part of what we are trying to do in tackling deforestation is to inject the process with a higher level of productivity. The effects are undoubtedly impressive. How that translates into the UK, I do not know. Gideon, that is your job.

**Professor Gideon Henderson:** Some aspects of it are my job. I will say a few words about it. The statement is true; some bits of the UK farming system are extremely productive, and it is hard to see them being even more productive, although it is possible. For instance, with decreased crop yields through pathogens or diseases and pests, we can seek to minimise them further by modern technology such as gene editing, but those will be relatively small changes to overall productivity.

Much bigger gains are to be had from parts of the farming sector where productivity is not at that level now, either because individual farmers are not operating using modern practices or the most productive mechanisms, or because of the large amount of land area put aside at the moment to meat production, often in quite extensive systems. There is potential for increases in productivity from some bits of the farming sector. That was the basis of the Climate Change Committee's assessment of a 20% change. There is definitely clarity in all the conversations I have had in government that offshoring of our food production is not a good idea and not something we want to do.

**Baroness Walmsley:** Is it not true that some of our most productive land is on lowland peat that we would rather restore? How will you resolve that tension?

**Professor Gideon Henderson:** It is true that some, although not all, of the most productive land is on lowland peat. That is a research challenge and will become a policy challenge. Some of it is easier to tackle than others, and we will start with the easy stuff. That remains a challenge and will add to the overall challenge that you laid out about making sure that we meet our environmental targets while continuing to grow food and not offshoring.

**James Quinault:** As you may know, there is a lowland agricultural peat working group, which will report next summer about a way through on that. More generally, there is the issue of land sharing rather than land sparing—the possibility of sharing food production and carbon sequestration on the same piece of land, paludiculture on lowland peat or agroforestry, and that is a high priority for research on policy by the department.

Q150 **Lord Krebs:** I think most of what I wanted to ask about land use has been covered, but I would like to follow up a couple of points that you made, Minister, which I welcomed very much, about the links between

Defra's ambitions and the ambitions of the department for levelling up and housing and whatever else—DLUHC.

Looking back on a debate during the passage of the Environment Bill, when you responded to Baroness Young of Old Scone you referred in particular to the nature recovery plans. Baroness Young, in responding, asked how those related to the need for land for house use and development, and all the other economic uses that the planning system covers.

In contrast, when a week or two back there was a Question for Short Debate on land use strategy, again led by Baroness Young of Old Scone, the Minister from the department for levelling up who responded talked about houses, infrastructure development and economic benefit, but did not mention climate change or biodiversity. The impression that we were getting was that your department is on one track and DLUHC is on a different track. I am very pleased, therefore, to hear that you are talking now about bringing the multiple needs for land use together. I wanted to get your confirmation that that is happening, and that in effect it amounts to a land use strategy, even if you do not call it that.

**Lord Goldsmith of Richmond Park:** This argument has not been won comprehensively—the barrier between climate and nature. The absolute need to make nature restoration a key government priority exists on paper, but that is not to say that government departments do not still occasionally revert to silo, which is why you hear certain things from one department and something different from another department.

These conversations between Defra and this new department—I keep getting it wrong—are very much happening, and they are happening at the highest level as well. The benefit we have is that Michael Gove was the Secretary of State for Defra, as you know. I think most people think he was a pretty good Secretary of State for Defra on the whole. He has a big interest in the issues we are discussing today, so we are pushing at an open door. I have had informal discussions with him about the issues and about how our two departments will have to work much more closely together to ensure that we get this stuff right and avoid the conflicts that could happen as a result of the point you just made. He relishes that challenge.

There is a lot of work to be done. Not all the discussions that need to happen have happened, but they are happening. I am excited by the prospect of our two departments being able to speak as one on how the planning system can be reformed in such a way as to deliver the goals that Defra has signed up to. We have a big opportunity. There is a lot of work to do, but it is happening. That is a very long-winded way of saying yes, I confirm it.

**Lord Krebs:** Good. Thank you. If we were to suggest in our report the need for greater integration of the needs of the natural environment and the needs of humans to have places to live and roads to drive along and so on, we would be pushing on an open door.

**Lord Goldsmith of Richmond Park:** Yes, absolutely right. That is not to say that it is not worth pushing, but yes.

**Lord Krebs:** We will.

**The Chair:** Thank you.

Q151 **Baroness Blackwood of North Oxford:** I have a very brief follow-up to the question from Lord Krebs, and a natural extension to the point he made. Obviously, there is more awareness and support than ever about the need to take action on climate change and drive forward on net zero, but as the choices and trade-offs on land use become more real at a local and individual level, the need for public discussion and debate, and systems for enabling people to really understand the choices ahead of the time when they will be faced with those choices, becomes more real. What is your plan in Defra and between departments to get from where we are right now to that point?

**Lord Goldsmith of Richmond Park:** It is not just a Defra thing. Defra, I think, is in a very strong place on this, but a whole-government approach is required. It is a mistake to see it as a choice between nature and all those other activities, and I am not suggesting that you have done that. In a sense, what we need to do, and increasingly are doing, is apply the green filter to decisions that are made. If we have to invest in water infrastructure, for example, the first question should be: is there a nature-based solution that we can adopt? If we can, that must become the thing we adopt, as opposed to immediately reaching for the grey infrastructure.

The same is true of housebuilding. You can build homes in a way that is conducive to nature. You can do things relatively cheaply that maximise the opportunity for nature, or you can build things in a way that has no regard for nature at all. Our challenge is to ensure that if biodiversity is a national priority—as it is; the Government have made that very clear—it means that every decision the Government make should take into account the possibilities either to maximise biodiversity or to minimise the effects on biodiversity. That is the lens that needs to be applied to government. I am not pretending it is there yet, but I think Defra is playing a pretty important and effective role in ensuring that we are moving towards that position.

**Baroness Blackwood of North Oxford:** That was not quite my question, although it is a good point. My question was about public engagement and public support when decisions become controversial, so that the ground has been laid for why those decisions are necessary.

**Lord Goldsmith of Richmond Park:** I suppose I have to try to imagine what those controversial decisions are. I do not want to sound as though I am evading the question, but an awful lot of things can be done that are not controversial and not painful and that people would broadly support but which are not being done. It seems to me that that is the priority.

There is an enormous amount to be done. There will be moments of conflict and moments when issues need to be resolved, but I think we can overlay the clash when it comes to the interests of ordinary people in communities. It feels to me that people broadly want the Government to be more ambitious in relation to nature and climate change. I certainly feel that, and I am sure as a former MP yourself you would have felt that as an MP, and I think most of our colleagues would say it is true. Can you give me an example of the kind of practical, on-the-ground, grass-roots conflict you think we are going to encounter?

**Baroness Blackwood of North Oxford:** My experience as an MP was that the simplest flood improvement scheme raised enormous emotions at local level, but perhaps you had a different experience.

**Lord Goldsmith of Richmond Park:** You are talking about natural flood management and therefore using land in a way that minimises the risk of flood. We had that in my constituency, even though it was an urban constituency. A lot of people were furious about the idea of allowing some of the Thames flood plain to act as a flood plain with a view to reducing pressures downstream. I thought it was one of the most exciting projects imaginable. I was not necessarily with the majority.

A lot of it is about engagement. If there is a difficult choice to be made, but it is obvious which choice needs to be made, in relation to nature and climate change, those discussions need to happen. It is important that we do not force unpopular decisions upon reluctant communities, otherwise there is a risk that we exhaust people's appetite for environmental solutions. I think that on the whole that is avoidable.

Q152 **Lord Holmes of Richmond:** Thank you, Minister, for your time and answers this morning. I have a couple of quick points, if I may. I know we are doing a lot, but do you think we are doing enough on the finance side of this, particularly deploying new technology and fintech to be able to do stuff that we would not have been able to do perhaps even five years ago to get real-time measurement and novel solutions to accelerate some of this stuff?

Secondly, what from your point of view will be the hardest nut to crack in all this? I am happy to tell you that I am currently sitting in Richmond Park at the moment—the constituency rather than the actual park—and, fabulously, it does not feel urban at all to me.

**Lord Goldsmith of Richmond Park:** I can very much relate to that last comment. Probably the hardest nut to crack, politically at least, will be diet—the question of meat eating and what we are likely to be eating in future. There, technology may end up having a much bigger role than people imagine today. It is possible that there will be a sudden rapid shift to the kind of artificial meat production that is gripping the world at the moment. It is impossible to know. Is it likely that people will be happy to make that switch? If they do, if things progress as a lot of very serious analysts think they will, it will be revolutionary, and will probably have a bigger impact on the world and nature than anything we have spoken about today.

It is a big if, and it is almost impossible to predict, but that is probably the toughest issue. Gideon and I have talked many times about how we can address these issues without going down a rabbit hole of government wagging its finger at people and telling them they cannot have such-and-such to eat, and they cannot do this and they cannot do that. Politically, that is probably the most difficult area.

I am not so worried about technology. The technology is moving incredibly quickly. My own view as regards the low-carbon transition is that even if Governments backed away and withdrew from the commitments made on climate change, the transition is now inevitable. There are plenty of examples of that in countries where there have been massive gains in low-carbon transition, not least in the US under President Trump, despite his efforts. It feels to me that the market is way ahead of the politics, and no matter what the politicians do, that transition will happen. Will it happen quickly enough? Probably not, which is why Governments have a role to play.

The really difficult bit is the nature bit; there is no sweeping technological solution to the reparation and restoration of natural systems. That requires much more intense work, much more commitment, and there is no market there. This goes back to the first question I was asked about the market. It is incredibly difficult to turn nature into a market, or nature services into a market. It will happen, but it is nothing like as inevitable or straightforward as low-carbon transition.

**The Chair:** Thank you. I was challenged the other day to try a non-meat hamburger and the real thing. I did not take the challenge, but I was told that I would not be able to tell the difference. Perhaps I should try it.

Minister, Professor Henderson and Mr Quinault, thank you very much indeed for coming today. You have been very comprehensive in your answers, Minister, and thank you for that. You brought your supporters. I have to say that you did not need them, but they were most welcome, and thank you all for coming.

You will get a transcript. Please feel free to change it if there are errors in it. Thank you very much indeed, Minister. We appreciate it very much. Goodbye and good luck.