

Environment, Food and Rural Affairs Committee

Oral evidence: Tree planting and woodlands, HC 814

Tuesday 9 March 2021

Ordered by the House of Commons to be published on 9 March 2021.

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Members present: Neil Parish (Chair); Ian Byrne; Geraint Davies; Dave Doogan; Barry Gardiner; Dr Neil Hudson; Robbie Moore; Mrs Sheryll Murray; Derek Thomas.

Questions 1 - 63

Witnesses

I: Dr Amanda Thomson, UK Centre for Ecology and Hydrology; Professor Ian Bateman, Director, Land, Environment, Economics and Policy Institute, Exeter University; Jim Mackinnon CBE, Former Chief Planner, Scottish Government.



Examination of witnesses

Witnesses: Dr Amanda Thomson, Professor Ian Bateman and Jim Mackinnon.

Q1 Chair: Welcome to the EFRA Select Committee this afternoon. We are looking this afternoon into the planting trees and woodlands, and getting a good number of the right sort of trees in the right places. We have some very good witnesses with us this afternoon. Would you like to introduce yourselves, please?

Dr Thomson: Hello. I am Amanda Thomson from the UK Centre for Ecology and Hydrology. I am scientific lead for the land use, land use change and forestry sector of the national greenhouse gas inventory. In 2018 and 2020, I undertook modelling and analysis for the Committee on Climate Change on land-use-based mitigation options, including tree planting, for them to include in their net zero and sixth carbon budget reports.

Professor Bateman: I am Ian Bateman, professor at the University of Exeter. I am a member of the Natural Capital Committee, various Treasury working groups and the JNCC.

Jim Mackinnon: Good afternoon, everyone. My name is Jim Mackinnon. I was formerly chief planner and director for the built environment with the Scottish Government. Since I retired, I have done two significant studies—one for the Scottish Government and one for the Irish Government—on how you might go about increasing the planting rates in both countries, as in both countries the rate of planting was falling below Government targets.

Q2 Chair: Amanda, how important is creating new woodland to delivering the overall reduction in emissions from land use needed to achieve net zero by 2050? There is a nice easy question for you to start with.

Dr Thomson: Currently, forestry is the biggest carbon sink that we have in the UK. Under business as usual, that is expected to decline by about half out to 2050 because a lot of the forestry sink is being driven by the large extent of planting in the 1960s and 1970s through to the early 1990s. Those trees are now maturing, being felled and being replanted, so you have a reduction in the carbon sink.

When I undertook the modelling for the Committee on Climate Change of the various forestry options that they had under different scenarios, from 30,000 hectares a year up to 70,000 hectares a year, that increased the carbon sink that we would expect under business as usual. It doubled, and in the really high cases tripled, the amount of carbon sink you would expect from that.

While that is a significant amount—it is 4% to 5%—it is obviously not a magic bullet for the whole of net zero. Even trees you plant now are not going to be achieving their full potential for carbon sequestration until



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after the 2050 target date. It is important to take into consideration other things than just carbon—

Q3 **Chair:** Are you talking about 40 to 50 years before these trees reach that?

Dr Thomson: Yes, it would be along those lines. Obviously, it depends on what you plant; some species grow faster than others.

Q4 **Chair:** On your point, which is a good one, about the fact that we are cutting down quite a lot of the trees that we planted in the 1960s and 1970s, is there an argument to do steady planting and keep planting steadily every year if we could? These trees would gradually reach their maturity dates, be felled and then be replanted. You are going to get a cycle within tree planting however you do it, are you not? We will talk later about trees as a crop. Is there an argument for steady planting each year, if that is possible to achieve?

Dr Thomson: Yes, you would continuously plant if you want an ever-increasing carbon sink. Otherwise, over time, yes, things will stabilise or reach a dynamic equilibrium. Things will vary over time.

In the modelling we did, we were having to ramp up from what are historically quite low levels of planting at the current time. Getting up to 30,000 hectares is reflecting what we were getting in the high point of the planting rate, in the mid-1970s.

Q5 **Chair:** What impact do changes to the mix of types of trees planted and the density of planting have on the delivery of carbon reductions? Am I right in saying that, if you wanted to capture the most carbon, you would put the fastest growing conifers you could as thickly as you could together? Of course, we actually want biodiversity, a mixture of trees and quite a lot of deciduous trees. How do we balance the two?

Dr Thomson: It really depends on the timescales. Yes, if you are purely focused on a target in the short-to-medium term, you would plant the fastest-growing trees. If you are looking at a date out to 2100, broadleaf trees will actually absorb as much if not more carbon than rotational forest like the Sitka spruce, which is the most commonly planted conifer, for example. It is important to see whether you can take multiple approaches from your tree-planting approach.

Q6 **Chair:** Are there particular types of trees that are particularly good at capturing carbon?

Dr Thomson: A dedicated forester would be able to answer that rather better, because you are not just thinking about the carbon that is embedded in the biomass itself. You are also thinking about the soils you are planting it on, how much you disturb and also whether that tree is good for timber that can make long-lived products that you can then substitute for higher-carbon-emitting products like concrete, for example.



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The carbon in solid wood furniture can last for decades and decades rather than the cheap stuff that goes into paper.

Q7 Chair: Thank you for that. We are going to deal with a question about that later on. Ian and Jim, is the Government's target of 30,000 hectares of new woodland a year by 2025 achievable? I am going to give it to Ian first, and then Jim is the expert on how to plant trees. He can have the question last.

Professor Bateman: I am going to leave issues like the availability of nursery stock and that sort of stuff to Jim. It is eminently achievable. You have all the legislation in place now, which you have not had for 40 or 50 years. You have an Agriculture Act that prioritises public money for public goods.

If you plant woodlands in the right place—that is an absolutely crucial issue; planting them in the wrong place is a very poor thing to do—they are one of the best sources of public goods you can get. Yes, you can store carbon, but also you can enhance biodiversity, water quality and flood defence, and you can provide recreation and all of that sort of stuff.

The ability to do it in terms of the law is now in place. It is really a very simple issue: are you prepared to pay or not? We have the money. We have the money in the Agriculture Act. This is one of the best public goods around that you can get with land. Given that you have the money, it just requires the political will to allocate that money towards this. I am absolutely sure that we can deliver this.

You can see that just in what has happened in the last 40 or 50 years. Every time there was a policy initiative, it did have effect when it was correctly targeted. There is no reason why this cannot be done with regards to woodlands.

Q8 Chair: Jim, how did you succeed in Scotland and Ireland?

Jim Mackinnon: I have a number of points. I agree with what Amanda and Ian have said. The issue of product substitution and the use of timber in construction is important.

Let us not forget that another element in all of this is the benefit to rural economies. Forestry in Scotland is worth £1 billion. It creates 25,000 jobs from nurseries through to people doing contracting. That is very important. Planners tend to think of sustainable rural development as weaving yoghurt, pottery and stuff like that, but these rural communities actually need people doing these quite demanding jobs. They may not look very good or very sexy in the current environment, but they are absolutely vital in that respect.

I agree with Ian. This is eminently doable. In the last year, Scotland planted 12,000 trees per annum. We are now looking at getting up to 18,000. There are two big things here. One is understanding the processes at work rather than bandying about terms like "vision",



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“strategy” and “partnership”. You have to understand how it works in practice. Ian has made a point about money, but we should remember that there are quite big issues there about the price you pay. It takes a longer time to get a return on hardwoods, native species and broadleaf trees than it does on conifers.

What made the big difference in Scotland was a sustained political commitment. It was a Minister who was there all the time. It was not just a case of turning up and making suitable speeches. He gave regular updates; he was on the case. He built up a partnership with an industry so that you actually got a very clear message and shared objectives. We talk a lot about partnership working, but this ended up with the industry, the Scottish Government and the environmental agencies putting out joint press releases. They were all facing in the same direction.

One of the challenges—this came over in a major way in Ireland—is the impact of environmental designations. If you want to substantially increase the rate of planting, you have to be very careful about where and how you do it. You have to be careful about where because it could impact on an area that is environmentally protected for its habitat or its particular species. That is actually something that has to be taken into account. Some foresters are very nervous about dealing with that.

In Ireland, they have what is called a third-party right of appeal. You can appeal for planting, thinning and felling. There is a huge backlog of appeals, because there is a group of individuals and an individual who know environmental regulations very well and they appeal a lot of the approvals, thinnings and fellings. That has led to a big backlog, so it is very important that the UK does not sleepwalk into this and pretend that these issues do not exist.

Q9 Chair: Jim, you make an interesting point. Naturally, if you have heathland or moorland where you do not want trees, or if you are looking to maintain a certain amount of heathland at the edge of a forest, it is quite an interesting balance, is it not? I imagine that there is competition then. I suppose you have to try to balance the need for biodiversity with the need for planting trees. How do you solve that one? You make an interesting point, but it is not quite so easy to solve, is it?

Jim Mackinnon: Indeed, yes. The first thing is that you have to engage in some form of public consultation. Confor, which represents the industry, produces some very helpful guidance on that. If you are planting 100 hectares of forestry, it could have a devastating impact on the landscape as people know it, and on heathland, as you say.

The other thing is to get the key environmental agencies around the table at the outset of the process. They can advise on potential sensitivities. If the answer is no, then say it is no, but if there are ways in terms of species type and where and how you plant forestry, it could actually work extremely well. It is not simply a case of putting a red line around a site and saying, “We want to plant here”. It has to be done with a degree of



pre-planning, sophistication and community engagement, recognising the environmental challenges that you might have to meet.

Professor Bateman: This comes to the central issue of the right tree in the right place. If we use the information we already have—we have had it in this country for a long time—we can identify areas that will give tremendous value for money in terms of public investments, in terms of the carbon stored, the biodiversity generated, water quality, flooding, recreation and all those sorts of things. We know enough already to do this. The colleagues I work with in Defra can already do much of this.

Whether we will deliver on that depends on how we do this. If we target the right areas, we can do it. If instead we do what has been done for the last half-century, if we simply announce a grant and in effect throw the money on the table and say, “Anybody can pick this up”, what you will get is forestry that is being determined not by the carbon, water, biodiversity and recreation benefits it gives, but purely by how much a piece of land generates in terms of its agriculture value at the moment and the value of the subsidies. To be honest, the timber value is trivial.

Chair: Ian, we are going to come back to this. It is a very good point. We will deal with that in a minute.

Q10 **Ian Byrne:** Many submissions from NGOs suggested, Amanda, that crude planting targets could do more harm than good to biodiversity and/or climate change mitigation. What contribution can natural regeneration make to delivering carbon emission reductions by 2050?

Dr Thomson: We did not specifically look at natural regeneration. The modelling I did was largely on direct planting. My understanding is that natural regeneration can work, and it can be a cost-effective option, but only in certain areas. Those areas need to be adjacent to somewhere that already has a good diversity of native tree species or you need to be able to source seed directly from those surrounding areas that have those tree species.

The outcomes can also be slightly uncertain. You may get very good outcomes or it may fail, and it is much harder to predict that. There is a role for natural regeneration, but it has to be part of the mix. It will be more appropriate in certain areas or certain countries than it might be in others.

Professor Bateman: There are two main issues with natural regeneration. One is that it may produce outcomes that are superior in terms of their biodiversity consequences compared to, say, planting. It also may actually be cheaper in terms of the short-term costs of establishing forests.

However, with regards to carbon storage, it is unlikely to deliver the same level as directed planting. I am not necessarily talking about serried ranks of Sitka spruce, but, even if you are going to plant hardwoods and other native species, the actual intervention of direct planting will



generate those benefits in a much more timely way, but there are those trade-offs.

Jim Mackinnon: I would just say that it depends on what you mean by natural regeneration. Amanda pointed out that a lot of the trees planted in the 1970s, 1980s and indeed the 1990s have now been harvested, but a lot of that planting that took place in areas like the Flow Country, which is essentially peatland, would never be repeated. The issue is where you would want to encourage natural replanting of areas have been felled. There are different views between the industry and, certainly, the forest authorities in Scotland about how best to do that. You could use a lot of pesticides and herbicides. I am not a forester and I am not an expert on this, but it is not that straightforward when you are looking at that.

Bear in mind that 30% to 40% of the new planting has not been blanket Sitka. There has actually been a huge effort to plant broadleaf trees and native species for very good reasons. We should see forests not just as a source of timber and carbon sink but also as a huge recreational amenity for local communities.

Q11 **Ian Byrne:** For the second part of the question, I will go back to Amanda. How important a role does management of existing woodland play in reducing emissions?

Dr Thomson: To be honest, bringing in additional management, we looked at the fact that a lot of broadleaf woodland in the UK is currently unmanaged. It has not been managed for timber; it has not been thinned out; it is not achieving what it could do in terms of carbon sequestration. Trying to bring more of that into management did not seem to have much of an effect in terms of sheer volume of planting area.

Building on Jim's point around the last question as well, I want to say that bringing more diversity into the species we use and the native species broadly will also give you greater resilience going forward to unexpected events like pathogens, pests and diseases spreading out. You are not going to lose your entire crop to something that affects Sitka spruce, for example, if you have a mix of species planted. That will help both biodiversity and resilience in the face of pests, pathogens and climate change.

Q12 **Ian Byrne:** Thank you, Amanda. That was a really good answer. Ian, would you like to add anything?

Professor Bateman: The choice of species is something that requires quite a lot of consideration. You have to work out in advance what you want from woodland. I am getting the feeling that everybody here is of the opinion that it is not just carbon that we are interested in here. If we consider that choice, which I do see as part of the management decision, about what you produce, I would argue that it would be better to think about it over the sorts of timescales that trees operate within, which can be quite substantial.



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If you are looking at Sitka spruce, Britain has amazing characteristics for growth. You can get Sitka spruce being felled in 40 years. What are you going to do with that wood? You are basically going to put it in packaging, paper and products with a fairly low life expectancy. In other words, that carbon is going to be back out in the atmosphere fairly soon.

If instead you are prepared to think about it on a longer timescale, you can plant trees that can be used for things like furniture, which Amanda mentioned. The other thing we really have to talk about is construction. Then you get this double benefit. Not only are you physically storing the carbon in those stems, often for very long periods, but you are displacing other construction products that are very dense in terms of their carbon requirements, concrete in particular.

We have to really attempt to think of all the benefits and all the time periods that are relevant here to get the right answer.

Q13 **Ian Byrne:** That was an excellent answer. Jim, would you like to add anything?

Jim Mackinnon: I would just mention the old adage that 24 hours is a long time in politics, which I appreciate, but this is something that requires sustained commitment. It is not policy on, policy off. It has to be part of a very long-term strategy, and I am not sure we are very good as a nation at actually thinking in this way. We tend to think about things in the very short term, maybe because they have appeared in the headlines in a newspaper. This is something where you can get cross-party agreement and support that this is a good thing. How do we do that and keep that sustained commitment in terms of finance, political priorities and so forth? That is the key to achieving this.

We also have to avoid thinking that this is something that will simply happen because someone has said it should happen. You have to find ways of ensuring the delivery of it.

Ian Byrne: That is a good way to finish that question.

Chair: It is, yes. I agree, Ian. I agree with Jim that we are going to have to have cross-party support for this, because trees are a very long-term project by their very nature. We will get a lot of cross-party support on trees, so that is good.

Barry Gardiner: Chair, there is far too much agreement on this panel. We need to stir it up a little bit.

Chair: There could be nobody better than you, then. Off you go.

Q14 **Barry Gardiner:** I want to do that by saying, first of all, that we have all talked about the 30,000 hectares that are required, but there are different views, are there not? The 25-year plan says that there should be an increase from 10% to 12% of land coverage. The CCC and the National Trust are saying 10% to 17% of land coverage. In their technical



annex, Defra has suggested that 10,000 hectares is probably the limit of what it can do. How much we are going to do and what is still very much up for grabs.

Dr Thomson, I want to encourage you to be really mean here. I want you to identify for us why trees are planted in the wrong places. I want to introduce a little bit of friction between you and Jim Mackinnon and suggest to you—Jim can come back at me in a minute—that the freeing up of the licences, particularly if it is following the pattern Ian was talking about in terms of saying, “Here is the money; bid for it”, is precisely one of the things that can lead to the wrong tree being planted in a place.

Dr Thomson: I would say that part of my role at CEH is that I am supposed to be objective and neutral, so I am going to resist the urge to bring in too much friction.

Undoubtedly there can be trees planted in the wrong place. One of the big examples at the moment is tree plantations planted on high organic carbon soil. Part of that was because previously they were not valued for what they were, which is why you had lots of planting on peat bogs in the 1970s. There is much more recognition now of the fact that you have to preserve your massive carbon stores; otherwise, you are just causing greater problems. For forest plantations, you have to work in concert with what else you know. That might be where your high carbon-store soils are or where your areas of high biodiversity are. Very long-lived semi-natural grassland is another place you would not want to be planting trees on, because you would lose a massive amount of biodiversity.

There are also some really interesting projects and models coming out now that help you to guide this. The James Hutton Institute in Scotland has been looking at planting suitability throughout Scotland. One of the things it has looked at is where you could plant things, taking into account soil, biodiversity and all the rest of it. It is saying that if you bung in lots of low-productivity woodland on organo-mineral soils, which are not quite pure peat soils but still have a high organic carbon content, you are actually going to have far greater carbon losses than you are going to make from your carbon biomass increase in the forest.

There is a role for bringing in more data and information and, if you like, whether you have considered those points being one of the hoops you have to jump through in order to get permission to plant trees.

Q15 **Barry Gardiner:** Is it not also the case that mechanical planting has been shown to disturb the soil in such a way, by compaction and other features, that it affects the carbon sequestration in the soil as well?

Dr Thomson: I am afraid that is not an area I know about. Certainly, deep drainage will affect the carbon sequestration, and drying out of soils certainly leads to additional carbon losses. I am afraid I do not know about mechanical compaction.



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Q16 **Barry Gardiner:** In terms of the significance of the risks of getting it wrong, through the use of unsustainable methods to do it or getting the wrong tree planted in what can only be the wrong place, how much can that then lead to an increase in carbon emissions?

Dr Thomson: I would hope that we reflect that in the modelling we do. It is possible to go and measure, but only in very small areas at a time. Undoubtedly, it can add to emissions. With any tree planting, we have to appreciate that there is always a balance of emissions and removals of greenhouse gases.

Again, it depends on the timescale you are looking at. If you are only looking at the next 10 or 20 years, the balance might be different from what will be the case in 100 years. With the planting of conifers on organic soils, for example, it is terrible in the short term, but 150 years down the line, three rotations down the line, planting the trees there is a net carbon sink. Do we want to think that far in advance or not?

Q17 **Barry Gardiner:** At the moment we have certain time constraints around working towards net zero, do we not? Professor Bateman, you wanted to come in at this point.

Professor Bateman: There have been plenty of examples. I will take the ones that Amanda started with. The Flow Country in the north-east of Scotland is basically one of the greatest and largest peat bogs in Europe. People slung 12-foot ploughs between Caterpillar tractors and carted them for 10 or 15 miles in lines and then turned around. What they did was they drained the wetland, and they emitted more carbon than could ever have been stored by whatever they planted.

Similar analyses have been shown for other parts of the country. I remember an analysis way back in the 1990s suggesting that planting in Wales had actually been a net carbon emission project. We have to be very careful about that, but we have the information to avoid those problems now. There is no reason why we cannot use that information.

Q18 **Barry Gardiner:** That is mapping at scale. It is about making sure that you are mapping the area to specify exactly what is going to produce the most public benefit from the planting of different species in those areas. Is that correct?

Professor Bateman: That is exactly right, but not just in terms of carbon. We can do it across multiple areas. The trendy name is ecosystem services, but basically we are looking at biodiversity, water, flooding and recreation.

Barry Gardiner: It is your stocks and flows of natural capital.

Professor Bateman: That is absolutely right.

Q19 **Barry Gardiner:** Jim, that brings me to you, because I want to push a challenge in your direction. Every drive to increase the plantation of trees



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in the 20th century has seen problems in terms of the wrong tree in the wrong place. I understand that the work you have done in Scotland has really boosted the hectarage that is covered by forest and, in many respects, *prima facie* one would say, "That is a great thing", but my understanding was that one of the tools and mechanisms that you used in order to do that was a speeding-up of the whole licensing process. That was done with political support; I totally understand. I do not know whether you were alluding to Friends of the Earth earlier as the people who had been saying, "Do not plant in that area", or whatever. You said there were people who would come in and say, "You should not plant this one there; you should not plant that one there".

The speeding-up of the process that you achieved in Scotland got these much higher rates of plantation, but I wonder whether that speeding-up came precisely at the cost of doing what Ian and I were just talking about, which is the mapping to ensure that all the environmental indicators and the environmental impact assessment was got right. This is not saying, "Do not worry about the environmental impact assessment", but making sure you got all the details, got it done and then pushed on.

Jim Mackinnon: You raise some very interesting points there, Mr Gardiner. One of the things that no one seems to have mentioned so far is the UK forestry standard, which sets a benchmark for where you plant, how you plant, what you plant and how you manage. It is absolutely a case of right tree, right place, right management. That is absolutely correct.

One of the things I discovered was that the grant application and the forestry design processes were getting completely confused in Scotland. My view was that, if you get the forestry side right, the plantation side right, the grants should follow. To be fair, Ireland proved to be better at that, but there were much bigger constraints in actually getting things done.

What we wanted to do was, for want of a better expression, to get the ducks all in a row here, so that you met at the start and identified the environmental issues that had to be addressed. Rather than submitting an application for 100 hectares of forestry and then finding out that it was a European protected site or there was a European protected species here, you get the key agencies around the table at the outset and get them to engage, be clear about the information they require and make sure it is submitted in the correct format.

In Ireland, it is just a debate between foresters. It is not as simple as that in Scotland, because a lot of the new graduates in the Forestry Commission equivalent might come with a background in biodiversity or ecology. That is really important, but, when the foresters start to talk about soil yields and so forth, they are not necessarily talking the same language. To me, what was very important was that the experts in hydrology—the Scottish Environment Protection Agency and Scottish



Natural Heritage—all got around the table and decided what was required. Instead of lengthy consultation on whether an environmental impact statement was required and then further consultation down the line when one was submitted, we tried to front-load the system. Despite the industry being very concerned about the impact of environmental impact assessments, what we found was that 2% of forestation proposals resulted in a full-blown environmental impact assessment. It is very good to screen that stuff out and scope it out.

You also made a very interesting point about large-scale mapping. I agree with that. One of the pieces of work I did a few years ago was following the collapse of the opencast coal industry in East Ayrshire, which left utter devastation but not enough money to restore the land. Much of this land is of very low environmental quality, but it could you give hundreds of hectares of planting without the grief that planting in more sensitive areas might. There is a potential for that sort of large-scale mapping to look at what would be possible, but there are also more local things that can be done with progressive and efficient management of applications for planting and grants.

Q20 **Barry Gardiner:** Chair, despite my best endeavours to sow dissent, it seems that we are ending up in agreement. Can I just push one final thing in your direction, Jim? Of the increase in hectareage that you achieved in Scotland, or indeed in Ireland, do you have a figure for the percentage of the different species? What percentage was Sitka spruce? What percentage was Scots pine?

Jim Mackinnon: My recollection, Mr Gardiner, is that something like 40% being planted now are broadleaf or native species. That is a very significant contribution. Some of the areas that have been planted, though, are uplands. You are not going to grow broadleaf trees there. Sitka or some other type of softwood conifer is probably the best solution there, but this goes back to the point you were making. You have to make sure you do the correct analysis to make sure you get the right sort of trees and that you take people and agencies along with you.

Q21 **Chair:** Jim, you have given me food for thought. I want to ask the whole panel this. Of the trees that are already planted in the country, has any work been done on how much of that is on peatland? How much of it that has already been planted out for trees needs to be replaced by other woodland on other land? This could be a significant amount. Has any work been done on that at all?

Dr Thomson: It depends on different parts of the country. The amount planted on organic soils is much higher in Scotland than it is in England. Wales and Northern Ireland also have a certain percentage of it. As things are being harvested and replanted—there is a general presumption that you are going to replant—they are being replaced by a more diverse mixture. That includes a lot more native species than were planted previously.



Q22 **Chair:** In a rough estimate, are we talking about 10% of present woodland, 20% or more? I am not going to hold you to an exact figure, but where do you think it is?

Dr Thomson: It will be awful if I get this wrong. It is between 10% and 20%, I think. I can come back to you with a precise number, should you wish it, after this session¹.

Q23 **Chair:** It is a fair point, because we are looking for a lot of land to plant trees on already. It looks like we will be looking for even more land in the future. We need to go into all of this with our eyes open, do we not?

Dr Thomson: Another point to raise is that the forestry standard, which Jim has already mentioned, also includes a greater percentage of open space now than was previously the case. You have to have at least 10% open space within a forest area. You have to take that into account in your planting.

In some cases with some of the plantations on organic soil, you are not necessarily going to take them off and restore the wetland, because you will actually cause more emissions trying to remove them than you will by leaving them there.

Q24 **Robbie Moore:** My questions focus on agroforestry and hedgerows. We all know that agroforestry is not a new mechanism, but if you asked your average farmer in the UK how much they have considered it or how much they had thought about adopting it, I suspect take-up is very low, if there is any at all. There has been a lot of good work done around this. I think of a fellow Nuffield scholar, Stephen Briggs, who has done a lot of work on agroforestry. Back in 2009, he was one of the biggest agroforestry farmers in the UK, in Cambridgeshire. What contribution can increasing agroforestry and hedgerows make towards achieving net zero?

While answering that, it would be interesting to bear in mind a further supplementary at the same time. What are your thoughts on the Committee on Climate Change in terms of their aspirations, including any ambitions around agroforestry and hedgerow planting, as we go forward to try to achieve net zero? Ian, I will come to you first.

Professor Bateman: I will admit that this is not my strong suit, so I am going to rely a lot on research being undertaken by other people.

Agroforestry is something that is very well established in other areas of the world. It has grown quite a lot in Europe, for example in France and Spain. You get quite a lot of agroforestry there. It is a real rarity, in proportional terms, in the UK. You are starting from an extremely small base.

You would want to be looking at it in terms of its net benefits compared to what else you might be doing with the land. Agroforestry will not be

¹ "Dr Thomson subsequently confirmed the correct figure was 13% based on the [1990-2019 UK Greenhouse Gas Inventory](#)".



contributing the level of carbon storage that you would get from actual conversion into woodland. Remember what I have been saying right the way through: we should absolutely not be just looking at carbon. We also have to be thinking generally about what we are displacing when we plant trees.

We should not shy away from the fact that all of this land, especially in a country like Britain, is under use at the moment. There is very little land in this country that is truly natural. We might think it is natural, but it is almost all not. We are going to be giving up something to do this. If we go into forestry, we are going to be giving up an amount of agriculture. We have to be very sophisticated about how we do this. There is no point in pushing out agriculture if it then results in sucking in carbon-rich food imports, for example beef from the Amazon and that sort of stuff.

I believe that agroforestry can play a role in addressing those issues. I am not at all speaking in favour of some idea that we move towards complete food security in this country. That would actually be a very poor approach to the use of the land. Just thinking about it logically, we are very poor at growing pineapples; do not try to be self-sufficient in pineapples. There is a lot of knee-jerk reaction with regards to stuff like this. Agroforestry has a role to play in making sure that the overall national strategy of addressing net zero is delivered in a way that is coherent in terms of Britain's place in a global economy. There are roles for agroforestry to play there.

Q25 **Robbie Moore:** Amanda, on that point, the Committee on Climate Change recommended including agroforestry systems as 10% of agricultural land by 2050. Yet Friends of the Earth believe that this is completely unambitious. France is aiming for 50% agroforestry by 2025. I am just wondering whether, while answering that, you could comment on how ambitious the current rates that we are aiming for are.

Dr Thomson: The rates of agroforestry modelled for the Committee on Climate Change were fairly unambitious. It was, if you like, trees on farmland. That could either be silvopastoral, when you are putting fairly low-density planting on grassland, for example for poultry farming when you have free-range chickens, or it could be silvoarable, which could be like the alley cropping that you see a lot more on the continent. It could be something as simple as shelterbelts, strips of trees along farm edges.

We only modelled between 9% and 15% of land being converted to that. With these high-density trees, you are not actually getting a lot of trees on that area and you are not losing that much agricultural land. From that point of view it was not terribly ambitious, but the carbon benefits of agroforestry are only a fairly minor component of the benefits you get in additional shade, shelter and increased crop productivity. There are also impacts for urban trees around benefits to noise pollution, air pollution and increased biodiversity.



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In terms of hedgerows, for the Committee on Climate Change we modelled up to a 30% or 40% increase. That was taking us back to just above the length of hedgerow that existed in 1984 from CEH's Countryside Survey. It is not that big an increase, but I can imagine that you would still have quite a lot of pushback from farmers in that you are making it less efficient, in a way, to farm.

In hedgerows in particular, there is still a lot we do not know in terms of their carbon storage. You can look at the above-ground biomass—what you can see—but we do not know the impact on the soils, necessarily. I would also like to have a better idea of what variation there is across the country. A Cornish or a Devon hedge looks pretty different from some scrappy line of hawthorn in East Anglia, for example, and they would have very different carbon impacts.

Q26 Robbie Moore: I might come back to Ian and Amanda, but, Jim, could you pick up on possible benefits linked to soil health? That is one of the most valuable assets that any landowner or farmer has. Can you comment on the combined impacts that agroforestry can have along those lines as well, Jim, if that is okay?

Jim Mackinnon: When I was growing up, there used to be a spoof history book called *1066 and All That*. In it, some things were good things and some things were bad things. I take the view that the agroforestry you are talking about is a good thing, not particularly in terms of carbon sequestration but certainly in terms of the amenity and other benefits that it brings. I am pretty clear on that. I should make it clear that I am not a forester and I am not a scientist. I am just talking about it hopefully as a reasonably well informed amateur or citizen.

The other thing to say is that in Scotland the average area planted in an application was 40 hectares. In Ireland, it was eight hectares. If you are talking about an agroforestry scheme, these areas are going to be very small. They might have very significant amenity benefits, but you actually have to get all those applications through the system. Presumably the farmers involved will want some degree of financial support.

I genuinely think it is a good thing, but I tend to agree with Amanda that, in terms of the impact it would make on carbon sequestration, it will not be very significant. As I say, I am not a forester and I am not a scientist. It sounds like a good thing to do for amenity reasons, but beyond that I am not sure whether it offers that much.

Q27 Robbie Moore: If I may just ask one very quick and simple question, is agroforestry something that we should be putting more emphasis on going forward? If so, how do we try to enthuse landowners and occupiers to take it up?

Professor Bateman: I am going to say yes. Echoing what the other witnesses have said, this is not mainly because of the carbon benefits. If you are looking for something that will boost biodiversity in an area and



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also help greatly with certain aspects of farming, a more treed agricultural environment can really improve things. The classic example is probably any farm that has a river, a stream or that sort of thing running through it. Putting trees around that area is going to be beneficial all round. It is going to save the farm money, it is going to make it more sustainable in terms of soil, and it is going to generate public goods in terms of water quality.

You can also imagine targeting agroforestry in areas where there are particular biodiversity benefits and possibly even recreation benefits. That would be great. It comes back to this issue about what your objective here is. We are looking at multiple objectives in the same thing and also at this issue of targeting.

Dr Thomson: Agroforestry is essentially talking about increasing woodland on farms, and there is an awful lot of farmland in the UK. Even if just a small amount of every farm has additional hedges or shelterbelts for agroforestry, that is a big increase overall.

I know some of the barriers to take-up that are being thought about in Scotland. I know someone who is applying for an agroforestry grant. The grant initially looked quite generous. When you saw all the hoops you had to jump through in terms of protecting those trees from grazing and what livestock you could keep in the field, all of a sudden it was not even breaking even. There is pushback on certain types of fencing or whatever, but there is a balance to be made that is still maybe not being achieved. That is why you have such low take-up of some of these available grant schemes.

Q28 **Robbie Moore:** Jim, do you have any final comments before we finish this section off?

Jim Mackinnon: No. Colleagues have answered this very comprehensively. Despite attempts to generate friction between us, no one has achieved that so far.

Chair: Barry might have gone off to speak in the Chamber now, so he will not be able to create any more friction.

Q29 **Geraint Davies:** I want to come back to the issue of the contribution that could be made from harvested wood products to achieve net-zero emissions. Basically, how viable is the idea of us growing more wood to put into buildings instead of concrete and steel, both in order to store carbon in buildings and, indeed, in terms of the construction of those buildings themselves? Is the fiscal framework in place to encourage that?

Dr Thomson: There is certainly potential to include more wood in the construction of buildings. In Scotland, I cannot remember whether it is a third or a half of all new-builds have wood construction in them. I know Wales is trying to up its percentage, and also up its percentage of Welsh-grown wood that is used for construction. There is certainly room to expand that.



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In terms of how you use more wood grown in the UK for that kind of construction, a lot of the wood that was planted in a rush back in the late 20th century is not particularly high-quality wood, but there are now technological solutions that can get around that. There is glue-laminated wood, which is essentially a heat treatment that means you can then use wood for a much wider range of construction purposes. You can look at some of the buildings in Japan. They are now talking about building really high-rise buildings out of timber. It is possible to replace an awful lot of concrete and steel, et cetera, with wood products instead.

Q30 **Geraint Davies:** Are we talking about engineered wood or hardwood?

Dr Thomson: I am not quite sure of the exact terminology. I know that glulam wood is engineered in some way, yes. A lot of the hardwood plantations in the UK at the moment are not producing very high-quality timber that can be used for construction in that way, so you might need to go for other routes.

Q31 **Geraint Davies:** There are a number of schemes for growing woodland, such as the woodland carbon credit, payments for public goods and carbon offset. Are those schemes fit for purpose? Do not go into too much depth. This is a very complicated area, and I will be told off by the Chair if it goes on for too long.

Dr Thomson: I do not know about that in detail. I know the woodland carbon code scheme has been set up and has been running. It was one of the first of its kind, so there is almost undoubtedly room for improvement and it will evolve over time. I do not know enough about it to say how good it is.

Q32 **Geraint Davies:** If we increased the demand, through building regulations, for example, for the use of more sustainable products in building properties and construction generally, for instance if we had carbon limits or whatever, that would presumably fuel imports of wood as well. Is there any concern that what we would end up doing is stripping out hardwood forests on a planetary level that would undermine net zero? In particular, if this was encouraged through COP 26, et cetera, and everybody started using more wood instead of concrete, could there be a perverse impact on our net-zero ambition?

Dr Thomson: Yes. I do not know whether it would be captured by the way we currently report this. I do reporting that goes to the UN Framework Convention on Climate Change. There are a lot of complicated reporting rules around this and different countries can take different approaches.

The UK model measures and reports in such a way that we can capture the removal of wood and it going into products, but other countries can do it in a different way. There is a risk of mismatch between what countries do. That is something that needs to be addressed on an international level as well as just a national level. Otherwise, you may end up with perverse incentives to start importing wood from elsewhere.



There is definitely a role for trying to encourage timber production and those kind of innovative timber products in this country as well.

- Q33 **Geraint Davies:** On a global view, you could take the view—we are not empowered to do this—that Russia has such a big land space that it is an ideal place to grow lots of wood. In the short term, people do not want to destroy the Amazon or anything, but that is where a lot of wood is. You want to replace any wood you take out. I am just making the point that what we do on our own in terms of our own woodlands is all very well, but if we create huge demand we are going to have an impact on sustainability outside the British Isles, are we not?

Dr Thomson: I am not sure whether I can answer that.

- Q34 **Geraint Davies:** I will move on, because I am probably going outside the scope of our inquiry, which is focused on what we should do in Britain.

Ian Bateman, you already mentioned how it would be a good idea to put more wood in our buildings, because we would basically store the wood in our buildings and the carbon used to create the buildings would be less. What would you like to see? We have things like the woodland carbon credits, the payments for public goods and carbon offset. What would you like to see the Government doing to encourage that? Are you also concerned that we will basically chop down a lot of trees that are absorbing CO₂ in the short term?

Professor Bateman: Starting with your most fundamental question, do we need to do this? We absolutely have to think about this. If you go back to what Amanda was saying earlier, she was saying that at the moment we have this big carbon store in living trees, and it is declining. Let us suppose you have a piece of land that is not forested and you put forest on it. What really happens over the length of time that trees live? You move from one carbon equilibrium to another. While that is going on, you are storing carbon. Once the forest settles down and it becomes mature, it no longer nets or sucks up any more carbon at all; it just moves to another equilibrium. While that is happening, it is great and you are taking carbon out of the air, but then the ability to take more out completely runs to zero.

The only solution to that, which might seem ironic to many people, is to cut the trees down—and replant, obviously. You have to take that carbon and store it somewhere else. What are we going to do with it? I have seen some absolutely crazy ideas about throwing it down abandoned mines and stuff like that, which is utterly ridiculous. Moving it into the construction area is a great way to store that carbon long term, because you get this dual benefit. This also offsets your very valid concerns about imports. You are asking whether this will result in us generating demand from elsewhere. At the moment, we are generating massive demand for cement, bricks and stuff like that, which are much more dense in terms of carbon. In net terms, we are improving things here.



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With regard to the finance, I have to say something that in a way I regret. The carbon code and all of those schemes are all great stuff, but really they are chicken feed. When you compare the millions that are available there with the billions that are available under agricultural subsidies and through ELM, the environmental land management scheme, under the new Agriculture Act, it is totally swamped out.

The good thing about that is that what I suppose we are arguing should be done has no net cost at all, and that is very unusual for any environment improvement. We are already putting this money into agriculture. I believe we should carry on putting that money into agriculture, but we have to stop paying for things that are basically the production of private goods that generate pollution, and instead pay for those public goods that the Exchequer should be funding. The great advantage is that we can maintain a lot of agricultural incomes and we can get much better value for money for the taxpayer than we are getting at the moment.

Q35 Geraint Davies: Clearly, if you grow some wood and you then put it in a building, you continue to store the carbon in that wood. In the event that you burn the wood, the argument is that you can grow another bit of wood. We also know, for example, that 40% of PM_{2.5}, in terms of air pollution, is caused by wood burning; obviously that is in domestic environments, but we now have huge power stations emerging that basically burn wood. It is a major public health problem. Do you think that we should not burn wood, and we should keep that wood and engineer it to be filler or whatever it is? Should we use it in construction and continue to sequester it and displace concrete instead of burning it?

Professor Bateman: We are looking at a product that can be used for so many things. That is another wonderful thing about woodlands. Yes, putting it into buildings is probably one of the best things you can do. Buildings, furniture and stuff like that last for centuries. It is probably the best thing you can do with it.

The argument for using it for fuel is to displace fossil fuels, but you are absolutely right that this is not—I am an economist—a zero-externality game. There are negative aspects to this, and public health in terms of air pollution is a big one.

I must admit—you are a politician, so it is an opportunity for me to say this—that I do not understand why people in cities are being allowed to fit wood-burners into their homes. I know they look great and all that, but I just do not understand it. I just do not understand why we are allowing people to have this diffuse source of noxious and dangerous pollutants all over our cities.

The one advantage of burning it at power stations is that, if it is all in one place, it is much easier to try to do something about the pollutants that



come off it. It is a balance between the downsides of conventional fuels versus the downsides of wood fuels. It is not a simple issue.

- Q36 **Geraint Davies:** No, unless we can generate sustainable renewables like solar, wave, wind and stuff. Jim, I will ask you the same sort of question, namely about the opportunity to use wood in place of concrete and other materials to have more carbon-friendly construction and carbon storage in that construction. If we do this on a major scale, are there concerns about stripping out other people's forests? How should we co-operate together to do that? Finally, are the fiscal incentives in place reasonable to encourage more wood in construction?

Jim Mackinnon: I have two points. First of all, you are absolutely right to raise the issue about how something that might be good for the UK's carbon balance may, in a wider European or global sense, actually look pretty bad. Whether it is wood from the Amazon or Russia, you are absolutely right to raise that. These questions around sustainability are actually very complex, and they are not really susceptible to easy solutions.

I would make one point about building regulations. I confess I was slightly concerned about Amanda talking about skyscrapers in Japan using wood construction, particularly in the light of Grenfell. Fine, let us look at the opportunities for using wood in building construction, but you also have to balance that with other considerations such as structural safety and fire safety. It is by no means a straightforward issue.

In relation to finance and the financial support available, I do not know. I do not know what the arrangements are in England, or even in the UK more generally.

- Q37 **Geraint Davies:** Can I ask you about the earlier bit? We are moving into the COP 26 situation; I know Amanda will know a lot about this. We need to look at this on a global scale, to encourage the world to use more wood in construction and less concrete and less steel, for argument's sake, in a sustainable way. If you have a global map and you look at the size of Russia, where the forests are and where they could be, we do not just want to strip out the Amazon. Is there a case to be made that we do make up a strategic plan that we present in Glasgow at COP 26? It could be some sort of blueprint or greenprint for how we should go forward globally in using wood assets in a way that is sustainable and that begins to displace our reliance on fossil fuels?

Jim Mackinnon: That is a very good idea and a very worthwhile initiative that is really worth pursuing. Of course, you get into issues around geopolitics as well, but, as a principle, this is something that is worth doing. Seeing this in the round is certainly well worth taking forward as an idea. It could be one of the big things to come out of the COP 26 conference.

- Q38 **Geraint Davies:** That could possibly be built into trading relations. We



are all thinking about trade and the carbon cost, as it were. It seems to me that everyone thinks about production and how much carbon you produce, but the real issue is carbon consumption. It is no use exporting all of our coalmines to China so they can produce plastic toys for us to sell at McDonald's and then saying, "Look, we do not have much of a carbon footprint", when really we are creating all of that, are we not?

Jim Mackinnon: Absolutely, yes. I could not agree more. That is very well put.

Q39 **Geraint Davies:** Finally, on this point about burning wood, I completely agree with Ian that it is better to take wood, whether it is engineered or non-engineered wood, and keep it as a carbon store rather than just burning it, given that it has such a bad impact on PM_{2.5}, in particular in urban environments. Perhaps we should not just be burning it. Do you have a thought about that?

Jim Mackinnon: I would agree with Ian on that. He is absolutely right.

Geraint Davies: I was supposed to ask specifically about woodland carbon credits, payments for public goods and carbon offset, but perhaps the witnesses are not in a position to give very detailed answers on that, so I might leave it. Ian has put up his hand. He revealed he was an economist, which is a dangerous thing to do. He might have a quick comment on the fiscal impacts.

Q40 **Chair:** Ian, before you come in, I want to link something to what Geraint is saying. On a practical basis, when we plant the trees and the types of trees, can we add into the equation the use of that wood, the value in carbon and what we are going to use that wood for, all in the grants for actually growing those trees in the first place? Is that just too complex a figure to work out?

Professor Bateman: It is absolutely not. We can do that already. In fact, I do not know if you have been given it, but I did pass to Ian some very simple slides indicating where we already are in terms of what we can show would be the consequences of planting different trees in different places.² We already know enough about that. It is all down to political will. It is not even saying, "We need more money". I am not saying that at all. It is just, "You have the money already. You have said you are going to spend it on public goods. Here is a perfect public good. Spend it on that".

Q41 **Derek Thomas:** Ian, you have said about the money being one of the reasons why targets have not been met. Are Defra learning? I will give you a quick example. In my constituency, I committed in 2019 to plant 20,000 trees in 2020, 80% funded by Government via the Woodland Trust. Every year, most of my schools plant 400 trees on their sites. I appreciate that might not be possible in other parts of the country. We are quite rural down in west Cornwall, right down at the very end. That is

² "See: Professor Ian Bateman [[TPW0085](#)]"



an example of quite small-scale tree planting, but in areas it is very manageable, and the land gets surveyed. It is a pretty constructive way of doing it.

Do you think that Defra is learning, in terms of making sure that the trees are getting planted, about how they financially incentivise that process?

Professor Bateman: First of all, let me congratulate you on what you are doing in your own constituency. There is going to be a small but significant role that every community across the country can play in this. This is something that has huge popular support. Perhaps just by a little bit of covering of some of the costs, you could generate some fantastic value for money there.

I have worked with Defra a lot. I have been very fortunate. I have worked with them for about 12 years now. To be honest, up until now there has not really been the legal framework to spend anywhere near enough money to actually change. You can see that. That is not some academic having an opinion. Just look at what has actually happened.

Last year, I believe, in England we planted about 1,700 hectares across the whole country, state-supported. At that rate, we do not have a hope of hitting net zero, and yet we have this colossal amount of money available every year to do something about it. If we just take the ELM at face value and say, "This is a pot of money for actually delivering public goods"—it is not for helping farmers grow more on their land or more cheaply. I am not saying that is a bad thing, but, to be honest, that is private investment. This is public investment and it should be delivering public goods.

This is the opportunity to take that money and change the face of the country. I have been working with farmers for nearly 30 years now and people say to me, "Farmers just want to farm". Yes, a lot of them would prefer to just carry on with what they are doing, but if you pay a farmer to do something and you pay them enough, and in particular you do not make them go through hell to fill in the forms to do this, then they will do it. You have a golden opportunity. This Committee can really change the face of the country into the future. I really hope that you are going to take that opportunity.

Q42 **Derek Thomas:** That is brilliant. I have another local example on the carbon credit question that the Chair referred to. Cornwall set itself a target of forests for Cornwall. It is very ambitious. Cornwall has really engaged in this. We are trying to get people to plant trees every autumn from what they can gather. The interesting thing is, when I met with the officer in charge of that, when they first committed to it and they committed to the 2030 net-zero target, they were a bit taken aback because they had interest from businesses and other local authorities in the country who wanted to pay Cornwall Council to plant trees—effectively carbon credits. To be honest with you, that did not feel right.



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Cornwall Council did not feel that is exactly what it wanted to be doing. What is your view on that? Is carbon credit a key part of the strategy? Is it an inevitable part of the strategy? There are lots of people who are very passionate about the environment who believe that carbon credits are a bit of a cop out.

Professor Bateman: I am afraid I disagree with them.

Derek Thomas: I do not believe that.

Professor Bateman: Government are powerful, but business is more powerful. Why would you ignore the major driver that you have to actually deliver change, in the country and globally, and just say, "No, we are not going to allow you to get involved in that because you are a profit-making industry"? Thank God businesses are profit-making. It is not a shameful thing to want to make a business a success. You have to recognise that there are a lot of companies that want to do something positive about this, and there would be a heck of a lot more if we actually incentivised them to do that.

I am not talking about spending more money. I am just talking about making it in the best interest of the firm, whether it is through regulation—it is a very unpopular word—or whatever means you want to, so that actually a business is better off doing whatever it does in a way that helps the environment than in a way that degrades the environment. I work with a lot of businesses, and a lot of businesses in Cornwall, by the way. I actually run a big programme down in Devon and Cornwall with over 200 businesses. We work with the council a lot. These are companies that would rather be doing what they are doing in a way that supports the environment than in a way that degrades the environment.

The irony is that a lot of the way that we structure the business of Government and how we regulate the land actually incentivises the bad things. It does not actually reward people for doing the good things or penalise people for doing the bad things. If we just got rid of those negative subsidies or the incentives to actually do the wrong thing, we would find that most companies, left to their own devices, would prefer to produce in an environmentally positive way than in a negative way.

Q43 **Derek Thomas:** I ought to clarify that this was very much at the beginning of the journey, so early 2019, when there was a flurry of activity, we were all learning our way and there was some nervousness about what we should and should not be doing. What I do know is that lots of people in Cornwall are benefitting from eForests. They are getting the trees from eForests and planting them all around Cornwall. There is a massive amount of tree planting going on. Thank you very much for that. What you are saying is that a business, where it can, should reduce its carbon emissions, but also the carbon credits help to deliver what eventually will be net zero.



Professor Bateman: Yes. I will just say one last thing. Relying on volunteerism is just not acceptable when you are facing a global challenge like this. We have to stack the table a bit, so that it actually runs in the direction of doing the right thing as the way of producing your profitable business.

Derek Thomas: You are welcome in Cornwall if you are able ever to get down here again.

Professor Bateman: I go down to Penryn a lot.

Chair: We from Devon do occasionally go over the border into Cornwall. It is a dangerous place to go, but we do actually go. It is a nice place to visit, joking apart.

Derek Thomas: Not at the moment, I hope.

Q44 **Chair:** No, not at the moment. Thank you for correcting me, Derek. Just before we leave this one, Ian, what I am worried about with a lot of tree planting is that, unless we get the finances right, in the end we are going to find a block on getting enough land to plant the trees. With environmental grants, we need them, but how do we also make it commercial? If you are a landowner or a tenant, you are worried about tying up your land if it is entirely reliant on Government grant in the future, because there could be a change in Government or a change in philosophy. All of these things happen. Who would have known about Covid and what happened this year? All of these things throw you off course. How do we make it more commercial? If we did, we could get more trees planted.

Professor Bateman: You have the money already. You just have to have the will to spend it on this. There are some legal issues here. You mentioned tenants. That is a big problem. I speak to a lot of farmers' groups where they say, "I am a tenant. If I do this thing that Defra wants me to do, all that is going to happen is my rent will go up. There is no incentive for me to do it whatsoever". Of course, we have also had problems where you plant a tree and you effectively almost lose that land with regard to subsidy. The Government have to do that. The Government are the only entity that can sort that out. There is not another way of doing it. It is not an easy one and you have to do it. The last thing I will say is that one of those elements is going to have to be long-term contracting.

Q45 **Chair:** You mean very-long-term contracting as well, do you not?

Professor Bateman: Absolutely, yes.

Q46 **Chair:** How many years are you talking about?

Professor Bateman: The fastest-growing tree in the UK that is of commercial value is the Sitka spruce, which we have talked about. There are places in the UK that can take a seed and turn it into a massive log in 45 years, which, in tree terms, is the blink of an eye. Having contracts



that do not match the reality of the environment, of the natural world and how it operates, does not make any sense. That is why we moved towards the 25-year plan, which is actually still too short but is a lot better than election cycles.

Q47 Chair: It is better than 10 years or whatever, yes. Jim, what about from your perspective? You have helped to plant a lot of trees in Scotland and Ireland. It will need public support and it will need grants, but it also needs a commercial element. How do we get that in there?

Jim Mackinnon: What struck me when I was looking at Scotland was that they had very poor management information. You have to develop a management information system to know what is working well here but not working well somewhere else. For example, Ian mentioned the tenant farmer. Is that a constraint in some parts? For example, is it the price of land? Is it acquiring land? What you need to do is have an information system that identifies the issues that are constraining the planting of trees. I have no greater insight than that because I have not dabbled very much in finance.

I adopted the idea of having regional targets within Scotland. For example, why was Highland falling behind, but Dumfries and Galloway was not? Understanding issues in different areas is actually very important, and then you can adopt different levers to hopefully accelerate the rate of planting, depending on what is actually constraining the increased rate of forestation.

Q48 Chair: Amanda, I do not know whether this is your expertise. Would you like to add a comment or two?

Dr Thomson: I would just say that there is always enthusiasm for planting trees, but it is just as critical to support the follow-up and the continuing management, and to fund that. At the moment, I could not find exact numbers for what the survival rate of tree planting is, but certainly 70% seems fairly standard. If that drops to 50%, which is not unheard of, that is a massive waste of resource, both in terms of the cost of the sapling and the efforts being put into planting it, and also the fact that, if you replace that, you are then five years down the line and you are only just starting to grow the tree.

If you are talking about farmers planting small-scale woodlands rather than big plantations, you also have to have the advisory follow-up. This comes into the management support that Ian and Jim were talking about. That not only includes management advice on how to manage trees, but it might include being able to club together and get access to the equipment you need. It is not going to be worth a farmer with a couple of hectares investing in the equipment he needs to prune or harvest his trees, but there might be a role at regional level to be able to access that equipment and access the knowledge of how you use that equipment and when you use it. There is that balance to be had as well.



If businesses are coming in to fund tree planting, can they also get credit for funding the follow-up, not just the number of trees in the ground?

Q49 **Dr Hudson:** Thank you to our witnesses, Amanda, Ian, and Jim, for being before us today. It has been a great session so far and it has been really interesting hearing your answers. We have touched a little bit on this already, but on the whole concept of the payment of money for public goods, Ian, you have said that the will is there, and we now have to target that money and make sure that money is made available. How do you think the Government should actually prioritise the different types of public goods that the trees will deliver in making these funding decisions? In terms of a pecking order of the good that can come from the trees, how do you think the Government should prioritise that?

Professor Bateman: There is a publication from the Treasury called the Green Book. I will explain what it is just in case anybody is not aware of it. It is the guidelines for how to appraise public spending. It says that you ought to look at the consequences of your proposal in terms of the benefits it is going to generate and the cost that it is going to incur. You ought to think about other ways to do what you are thinking about doing as well and choose the best way. The rule is quite simple: that you choose the route and the project that deliver the biggest surplus of benefits over the costs. For example, you do not choose the cheapest option. That is something very important. It is not just a cost minimisation exercise. It is a way of looking at the net benefits—the difference between benefits and costs.

You then get this problem: how do I measure those benefits and costs when they are things like tonnes of carbon, milligrams per litre of water pollution, how often an area floods, greenhouse gases, and timber values and agricultural values? What the Treasury says is that you ought to use a set of tools that have been derived over nearly 60 years now. These are not crazy approaches; they are not nuts at all. It is not going out and asking a focus group of 12 people what they think about something. It is actually looking at things like, for example, what the consequences are of different water quality. What costs does that incur to UK business or to people's water bills? It is stuff like that.

Perhaps one of the esoteric ones is about what the benefit is of outdoor recreation. That is something that has really been thrown into sharp focus in the last 12 months. You do not go out and say, "What is a woodland walk worth to you?", because nobody can really answer that question sensibly. Instead, you look at people's behaviour. You look at mass data sets. You look at what places people visit, how often and what costs they incur. From that, you work out the value that they must have had. The only assumption is they are not crazy. That is the only assumption.

For nearly every one of the benefits that I have been talking about, the Treasury already has approaches for turning all of this into a single metric, which is money. The big advantage of that is that you get away



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from a decision where you are comparing tonnes of carbon, with milligrams per litre of water, with houses flooded, with biodiversity or something like that—non-commensurate units.

My answer back to you is to use the methods that the Treasury already has to prioritise this. What it will show you is that one of the very distinctive aspects of the environment is that doing the same thing in different places generates massively different benefits and costs.

Let us illustrate it with two examples. Trees grow really badly on the top of mountains; they grow really well down in the bottom of valleys. The amount of carbon stored will vary enormously. We can turn that into money and then we can compare that with recreation, for example. You can say, "Right, we know that these people are not crazy. They actually make these tremendous numbers of visits". We are talking over 3 billion visits per annum before lockdown; I do not really know what happened in the last year. We put all of these into this single metrics, which is Treasury-approved and is how they assess these projects. By doing that, one of the great subtleties of that is that you avoid appealing but ultimately potentially very misleading shortcuts.

I was talking to a very relevant Minister, who I will not name, just a few weeks ago. I explained all of this and at the end he said, "Right, okay. I totally get what you mean. We ought to plant on the cheapest land". No, absolutely not. You should plant on the land that generates the biggest set of benefits relative to the cost. If you do that, you will always be planting on the right location. You will not be just using simple rules that say, for example, "Let us only plant on the cheapest agricultural land". With regard to this particular problem, if you only plant on the cheapest agricultural land, then the problems that Amanda was talking about—tree failure and you getting to 2050 and finding that you do not have half the carbon stock that you expected—are very likely to happen.

Q50 **Dr Hudson:** Amanda and Jim, do you have any thoughts on that first part of the question?

Dr Thomson: No, it is not really my expertise.

Jim Mackinnon: No, I am just in awe of Ian's very comprehensive answer.

Q51 **Dr Hudson:** I was just aware I did not want it to be a full instrumental solo from Ian, but I will go back to him now. Taking on board your comments about prioritisation, using metrics and seeing what the benefits are, if that is put into place, do you think Defra can and should actively target funding to specific locations, if it can work out that there will be a benefit in a certain area and can say, "Yes, we are going to get a benefit here"?

Professor Bateman: Yes, absolutely, because of the value for money that you will get. See if you can get Ian to send you through the examples I gave, because this was something that we actually did for



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Defra a few years ago for something called the national league system assessment. Barry Gardiner will remember this. They said to us back then, "Tell us where to plant 700,000 hectares of trees".

We answered the question, but we answered it in these two ways. We said, "This is the answer you will get if you just throw money on the table". The answer, unfortunately, is that the benefits generated are so poor it is not worth the taxpayer's money to do it. You are actually making the taxpayer worse off, whereas, if you target it, you can actually generate a value, we estimated back then, of about £500 million a year, which is great. If you look at the £3 billion that we are putting into agriculture at the moment and compare it with the public goods value of that, it is really very poor value for money at the moment.

Q52 **Dr Hudson:** That is really helpful. If I can push you a bit further on that to give you a geographical example in terms of the part of the world that I represent, Cumbria, it is sadly in the front line with flooding. Everyone is very interested as to how we can mitigate against floods by putting trees, hedgerows, et cetera, in the right places. As we said in the earlier line of questioning, there is the tension about the right tree in the right place. To give the Cumbrian example, how would you suggest Defra and then local stakeholders can say, "Right, we can have a really active, progressive tree-planting programme that is going to help us mitigate against floods"? How would they do that?

Professor Bateman: It is a mix. I am not talking about something that is totally top-down and Stalinist: "You will plant trees here". I am saying that first of all you target on the sort of things that I am talking about—the things that reflect the natural world and also the economic world as it really is. You would pick areas like your own and say, "This is an area where trees will deliver whatever they do in terms of carbon benefits"—it will probably not be much in terms of recreation, because you have fantastic recreation around there anyway—"but look at the flood risk reduction value that you get out of this". It will identify a certain area.

It will not be absolutely everywhere. Planting an even spread of trees at low density across the whole of Cumbria will probably have almost no impact on flooding whatsoever, but putting it in the right place, slowing the flow upstream, so that the water still comes down but it comes down at a speed that does not result in flooding, is where this sort of analysis can really help you.

There is still a local on-the-ground issue, which is that you do not control the land in that area. It is owned by private people and you have to induce them to do it. That does not mean that they have a complete monopoly over you.

What has happened in recent years, which has been spearheaded by private companies, is the idea of contracting for land-use change. Water companies have done very well on this front, saying, "We have some funding. We are not going to tell you how much funding it is. We want to



do some actions in this wider area. Give us bids for that. How are we going to assess them? We are going to look at the benefits of that, in particular flooding but also carbon and all that sort of stuff. We are also going to look at the cost. If you try to rinse us for this, there is a fairly good chance that your neighbour down the road is going to be coming in at a much higher value than you”.

This is what the water companies have done extremely successfully in addressing problems like metaldehyde, which I am sure Neil will know about—it is a really nasty pesticide—and also fertiliser flow into rivers. It has worked really well. The water companies have actually found that it is cheaper to do it this way than to build great big treatment works and that sort of stuff.

The Government can act like this as well. You are the Government. You can decide what you want to do. If you want to do this, you are allowed to do this. You will be getting much better value for money for the taxpayer than just saying, “We are just going to have to pay whatever it is. We will just put a cap out there”. Unfortunately, you will find that the people that you want may or may not join into that area, and you may not get the final benefit that you are really interested in, which in your case is dealing with the flooding problem.

Q53 Dr Hudson: That is really helpful. Before I hand back to the Chair, I wonder if I could throw that to our other panellists. Jim, do you have any experience of that from Scotland and Ireland, about the planning side of things but then the benefits of the trees going in? Specifically, I just wonder if you have any experience of that in terms of flood mitigation.

Jim Mackinnon: No, but it is a really interesting area. I absolutely agree with Ian that we should not have a top-down approach, but a very good way of using money is to say, “Let us look in your area”. In your constituency, for example, there might be a couple of areas that are experiencing a very high risk of flooding. Can we get Defra officials, forestry experts and local authorities around the table to ask what benefit increased tree planting would have in that area? It may well be that you have to offer a higher level of financial support to get the tree planting done in that area, but at the same time you are actually saving a lot more money in the longer term because you are having to spend a lot less money on flood prevention works, which are very expensive.

It is a great idea but it has to be from the local area, with specific areas where there is a big risk of flooding. It may well be that forestry is not the answer, but in some areas it almost certainly will be. If you can identify that through some quickly worked up examples, then you can roll that out into other areas. I am sure that could be a very effective way of not just achieving targets on carbon but also benefitting people who have the most awful life experience of seeing their homes flooded on a regular basis. I strongly support something like that being done.

Q54 Dr Hudson: Thank you, Jim; that is really helpful. Amanda, do you have



any final comments before I hand back to the Chair?

Dr Thomson: It is not my area per se. Looking at it, it seems like the additional tree planting has been linked to increased flood prevention in small catchments; it does not really scale up so well to big catchments. Anything you need to do is needing to look at quite fine-scale data. It might be that you are going to plant lots of little patches around the top ends of streams and bourns, rather than a big area just upstream from Carlisle, because that actually will not do what you want it to do.

Dr Hudson: It is very interesting. When we are putting trees somewhere, obviously we take it as read that there are going to be carbon benefits from that. It is good to know that is in the bank, but it is about whether there are other benefits, whether it is flooding, biodiversity or whatever, that then can add to the strength of the trees going in the right place.

Chair: Neil, it is almost how many bank accounts we can have with the same trees. That is quite a good analogy.

Q55 **Geraint Davies:** Ian, on the issue of where to plant trees, you can see from the flag that I am speaking from Wales. I know the Welsh Government are quite ambitious in wanting to develop the wood industry, in terms of climate change and net zero. You mentioned that putting trees on hilltops is not that efficient, but at the same time I know from my background in flood risk management that steep valleys and the like can give rise to very rapid flash flooding. Obviously, we have just talked about flood risk mitigation. What would be your approach in Wales to putting trees on higher land, on mountains, and in terms of trying to reduce the amount of flash flooding down steep slopes through valleys?

Professor Bateman: I know Wales very well. I was born in Birmingham, so I have spent a lot of time in Wales. When you are looking at the tops of mountains, a lot of those tops really are just not suitable for trees. They simply will not survive there. If you look at the native trees there, you are looking at trees that are sometimes only 10 feet tall and they might be 100 years old, because it is so adverse for them.

You have to evaluate what the water consequence of planting trees actually is. For that, Government have the opportunity to move into a really 21st century mode of decision-making, where they bring together the science of the environment with the economics that actually drives a lot of change. It is the two together. It is the scientists that will be able to tell you what the hydrological features are of this particular catchment and where you could modify the speed of flow. It is also about bringing in the tree experts, who can say, "That would be great, but, unfortunately, trees just will not grow there. Let us find the next place where trees can survive and deliver the benefits".

I want to just agree with Amanda. I am not saying that you go for trees and you can stop all other flood control. You cannot do that. Trees are not capable of doing that, especially with the change that we are seeing



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in the climate. What they can do is actually help contribute to reducing that flood risk, in a way that also generates all these other benefits as well.

Chair: I need to speak in the Chamber on the Budget in a minute. I am going to hand over to Sheryll Murray. Before I leave, I just want to thank Amanda, Jim and Ian very much for a great session. We have some more evidence to come. When you finish, if there is anything else left that you have thought about, please let us have it in writing. It has been a really great session. I am sorry to leave you at this stage, but you are in very capable hands with Sheryll. Thank you very much, Sheryll. Thank you, members and witnesses.

Mrs Murray: The Committee is in the safe hands of Cornwall now. I am glad Devon have handed it over.

Chair: It is only for a while, I hasten to add.

[Mrs Sheryll Murray took the Chair]

Q56 **Dave Doogan:** It is up to Scotland now, thankfully. Thank you very much for the evidence so far. The evidence from Ian on the risks and pitfalls, but also the merits, of tree-based attenuation that he gave in answer to Neil's question were compelling. I am an advocate of that anyway. It is important to understand those limitations. I know our Clerks are still on the call; it might be an opportunity to take a further look at that in the future, because there are definitely opportunities there to mitigate to a certain extent some of the dreadful events that we have seen across these islands over the last wee while.

It is clear that analysis recently has shown that Scotland in terms of planting is very much ahead of the other components of the UK, with 82% of new woodland being planted in Scotland, which is 12,000 hectares in the last financial year. I hope that represents success in any measure. I wanted to understand better from Jim Mackinnon what it is that can we learn in other parts of the UK about how to get those levels of delivery literally on the ground. In particular, I reference the making of grants and the role that has had in Scotland.

Jim Mackinnon: You will be aware of Fergus Ewing, who is the relevant Minister. Fergus comes from the area around Aviemore; that is where he represents. Sawmills and timber processing are very big. Some of the big benefits in terms of timber processing, from trees planted probably in the wrong places in the 1970s and 1980s, have actually come out in terms of jobs and economic activity in rural areas, not just in his constituency but more widely.

Looking at the falling rates of planting, it then became clear that in 20 or 30 years you could have an economic crisis in some of these areas where the timber processing industry had grown and was providing much needed employment and wealth. He took the point of view that forestry was not less important than agriculture. It was as important. It was a key feature of the rural economy. As I have already said, it is £1 billion. That



is what it was worth several years ago; it will be worth more now. It is 25,000 jobs. In your area, the Angus Glens, two or three jobs are quite a lot.

His view was that we needed to see what could be done to improve the rate of planting. He set about building good relationships with the industry. The industry began to trust him, and it was not a case of a Minister turning up, giving a set speech written by someone like me and moving away. He was personally committed to seeing afforestation increase in Scotland. He commissioned me to do this work and we involved the industry right from the start on how it could be done. It was a willingness for everyone who wanted to see more trees planted to get around the table and see what we could do about some of the various obstacles in the process.

What was also very clear was that Mr Ewing was actually monitoring progress. I had to go and see him. He had several summits, which would report on the progress of the review. We then presented the findings of the review. We then had an action plan to be produced by the Forestry Commission, and that was monitored twice at public events. He was holding public servants accountable for what was happening.

Some of the suggestions I made were probably useful. It was about partnership, but also a very firm and sustained ministerial commitment, which still takes place. Apparently, there are meetings on forestry with the Cabinet Secretary every two weeks. That focuses attention rather than the grand gestures in terms of a big set-piece speech. Those have been the most important things.

There were no issues that came up about the level of funding and support or anything like that. We had to make sure that the process worked a bit more smoothly at the end in terms of giving the conservancies more flexibility to promote or giving financial support to smaller schemes. With the bigger schemes, which involved very substantial amounts of public money, there would be a central clearing house. That was the way that we went about it. You are absolutely right: 12,000 hectares were planted in the last financial year. The ambition is to go even higher. Scotland seems to me to be quite well placed to do that. It is very much in this spirit of partnership.

When I did the work in Ireland, the level of distrust between the industry and the Government was quite palpable. There was not any sense of, "We are all in this together", for a whole variety of reasons. Scotland has done this, and we have great opportunities to do even more in the years ahead. My understanding is that, of the 30,000 hectares, perhaps as much as 18,000 might come from Scotland.

Q57 **Dave Doogan:** Yes, that is my understanding. In the 2024-25 financial year there is going to be a target of 18,000 hectares, so there is no resting on any laurels. I was going to ask you, Jim, about the importance of political leadership, but you have anticipated that. I am paraphrasing,



so correct me if I have got the sentiment of what you have just said wrong, but it was about a Minister being thoroughly invested in the industry and in the industry's future. Would that be accurate?

Jim Mackinnon: Yes, 110%.

Q58 **Dave Doogan:** It is important to remember, is it not, that when it comes to matters related to woodlands and forestry, before you engage in any conversation, you need to maintain that decades-long horizon? It is a crop like no other, if it is a crop. I appreciate in many instances it is a crop. You have to have that future-proof element to any actions that you take. Can I ask you how you would respond to any concerns that reducing the scrutiny of grant applications may lead to planting in inappropriate areas, if that is a genuine concern?

Jim Mackinnon: There is not much concern on that. People did not want blanket Sitka all over, for example, the Angus Glens or anything like that. That would be wholly inappropriate. There is a UK forestry standard to which all Administrations in the UK are committed. Environmental agencies are committed to it. The industry is committed to it. People are very sensitive now about where they plant, how they plant and what they plant. This has not come up as an issue.

It is a big issue in Ireland. For example, there are great concerns in Ireland about that. Also there has been a lot of work done to ensure that Government environmental agencies are signed up to help. You need to be proportionate and pragmatic. I was the chief planner and, when John Swinney became the Minister, he wanted to make sure that the commitment to sustainable economic growth was not just about the civil service; it was about planning reform. All the Government agencies—SNH, SEPA and Historic Scotland—have been signed up to assist in the delivery of that, rather than resorting to traditional roles and saying, “We are very interested in an ornithological survey”, or anything like that.

They are embedded to working with the general grain of what Ministers want. It is not that they are forgoing their responsibilities or anything like that, but they are looking at ways to make things happen. They are engaged early in the process. There are memoranda of understanding about how they will engage. That is a huge step forward and it is part of having a common view of what we can achieve and how, working together, we can all achieve it. The level of trust now that the industry has in Government and their agencies has actually been significantly transformed. You have one Minister who is demonstrably and regularly there to say, “I am the Minister for Forestry”. It is as important as agriculture in terms of sustainable rural development and climate change.

If you contrast that with Ireland, the Minister responsible for forestry is a junior Minister, forestry is not mentioned in the Department's title and then there is huge cultural resistance to forestry planting in Ireland: if you are a farmer and you plant trees, you are a failed farmer. There is a



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whole range of things that have worked in Scotland's favour—if only our football team would do as well as we have done in forestry planting.

Q59 Dave Doogan: I do not know whether Ian or Amanda has anything to add on that, with maybe a different take on that dynamic that Jim has set out.

Professor Bateman: Jim has a great deal of experience on the ground that I can only applaud. What I will say is that when I have worked with a Minister who really got this between his teeth, things moved really fast. Moving between Ministers, things can just completely disappear. I have been very fortunate; I have served, I think, the last seven Secretaries of State. The contrast is quite remarkable. I will leave it there.

Dr Thomson: I do not have much to add. Jim is obviously much closer to the heart of Government and has put it across really well. Because agriculture, forestry and the land-use sector are a much bigger component of Scotland's overall economy—certainly, we see from the greenhouse gas inventory—there is a lot more engagement from the Scottish Government and the Scottish agencies with what we do than there is from some of the other devolved Administrations or from England. Where I work is based just outside Edinburgh, so we are also a lot closer geographically to do that. Yes, we certainly see at all levels that there is a lot more engagement on these kinds of questions.

Q60 Dave Doogan: Finally, the availability of more marginal land in Scotland has been discussed, but this also exists to some considerable extent in large parts of England. I just want to clarify and double-check that there is no topographical or geographical impediment to achieving significant increases in planting in England. I am not missing something there, am I?

Professor Bateman: No, absolutely not. I was about to make a real faux pas and say most trees would rather be in England. That sounds absolutely appalling. What I mean is that, if you just look at it from a purely physiological point of view, most of the land in England is lower lands in less adverse conditions. Before humans started walking across from France, this place was completely covered in woodlands. You would have had more trees in the lowlands than the highlands. There is absolutely no physiological reason whatsoever for the situation. It basically shows that what really matters is not just the environment but that mix of the environment and the economy that determines what has happened in the past and what will happen in the future.

Dr Thomson: There are some areas of England that have just as high a density of trees as you get in parts of Scotland. If you look at Surrey, for example, it has a very high density of woodland. I am sure we would never get up to that level across the whole country, but it is certainly achievable while maintaining balance with your agriculture sector.

Jim Mackinnon: I absolutely agree with everything that has been said in relation to the huge scope for planting on marginal land. You just have to



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choose the right species. There are certain species that will not grow there; others will.

There is an interesting example from Ireland. If you take marginal land, which is the same as what they would call unenclosed land—land not defined by boundaries—in Ireland there is a blanket restriction. You can only plant on 20% of unenclosed land. That seems to me to be a wholly arbitrary figure that makes no sense whatsoever. This is very important when you are looking at new planting on what Dave referred to as marginal land. There are quite significant issues to address, not least in terms of changes in landscape character, for example, but there is no reason why you cannot plant in these places, as long as you do it in a way that is sensitive and reflects local aspirations and local conditions.

Chair: In the interests of the Union, trees should not choose between north and south of the border on where they want to live.

Barry Gardiner: You reckon they would be better off in Cornwall than in Devon, do you not?

Q61 **Chair:** That is possible. The final question is to all three of you. I will start with Amanda. Apart from money, and the grant processes, are there any other barriers to achieving the UK Government's targets. If you think there are, how can they be addressed, please?

Dr Thomson: We have covered a lot of them. The availability of suitable land is one, particularly if you are wanting to maintain agricultural output. You are going to have to couple additional expansion of forests with efficiencies in agriculture, whether that be increasing yields or in some way decoupling food production from the land area. One is the availability of suitable land. There is also the availability of suitable nurseries—the availability of trees—and the people to plant them. Community aspects are very good and very helpful, but it is possible that schoolchildren going out at the weekend and planting trees is not going to get us to the 30,000-hectare target.

It is not an area I know deeply about, but I know some UK tree nurseries have increased their production, but they still want long-term certainty. It is the perennial cry of industry: "Yes, we can supply the demand, but we want to know that demand is still going to be there a number of years down the line". That is one thing.

Tenure agreements have been mentioned. Tenant or landlord—who is going to benefit from the trees? How does that affect take-up?

I already touched earlier on the continuing access to advisory services and management. A lot of people who you would want to encourage planting trees are not necessarily expert foresters. Why would they be? I went to an agroforestry workshop and they had someone there who ran a woodland poultry co-operative. He was saying one of the issues he had with his farmers was he encouraged them to plant trees in their fields with their chickens but he had to stop them going in and poking the trees



too often. You go in and manage them once a year; you do not need to go in to manage them every three months. It does not do the trees much good.

There is definitely the advisory background, and continuing support there will also benefit, not just in terms of the take-up of planting but the survival of that planting and achieving its maximum benefits, whether that be for carbon, for timber production or for biodiversity.

Q62 **Chair:** Ian, do you have anything additional that you would like to bring to our attention?

Professor Bateman: I only have one point, because I just wrote down a list and Amanda ticked off every single one. I am going to just make one point of slight disagreement. That is not with her list at all, but Amanda mentioned the availability of suitable land. We have to get away from the idea that there is a certain type of land that is no good for agriculture, for example, and that is the suitable land for forestry. There are some fabulous areas that are currently under agricultural use—not necessarily the highest value but nevertheless it is being used—that could generate enormous amounts of carbon storage, biodiversity, flood defence and all those sorts of things.

One last one is land that could actually help alleviate environmental poverty, particularly around disadvantaged populations. Interestingly, that is not just cities. You will know that better than me. If you take somewhere like Cornwall, there are populations there that have had to suffer quite disadvantaged situations in terms of their environment. Trying to improve that would improve their wellbeing no end. Let us not talk about suitable land as being the inverse of agricultural land.

Q63 **Chair:** Jim, do you have anything that you would like to add to what the other two witnesses have raised?

Jim Mackinnon: I would identify the key things as visibly and sustained political commitment and leadership, without the chopping and changes that Ian referred to. I would refer also to the importance of management information, so you actually understand what is going well where and what is not going well in other areas, and what the obstacles and constraints are that are holding you back. You need to ensure that there is agreement across the board. That is in terms of the political support, the support of Defra and the Forestry Commission, the environmental agencies and the sector, so they are all seen to be working and moving towards the same objective.

Finally, something that we have not touched on here is skills. You need to make sure that you have the skills in place to deal with some really quite complicated issues. One of the things I have found in Scotland was from looking at the training programme in the Forestry Commission. There was lots of training on things like personal development and managing relations. That is fine and important, but you have young inexperienced



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foresters who cannot talk about things like soil yields, species types and all of that. You need to make sure you have the right people at the ground level, who are actually capable of doing things with the confidence to just move things forward, rather than say, "There is a problem here. I am not sure. I need to consult". These sorts of things slow things down.

Someone mentioned nurseries. One of the problems that really emerged in Scotland a few years ago was that the targets were clear, and they were not being met. Nurseries had geared up to provide the seedlings to plant, but there were not the grant approvals. You need to make sure that all of these things are absolutely joined up.

Chair: That completes this session. Thank you so much to Amanda, Jim, and Ian. You have given us a fantastic session. I am sure the Committee members will agree with me that this has been a really productive evidence session.