



Environment and Climate Change Committee

Corrected oral evidence: Nitrogen

Thursday 21 May 2025

10 am

Watch the meeting

Members present: Baroness Sheehan (The Chair); Lord Ashcombe; Lord Duncan of Springbank; Lord Jay of Ewelme; Lord Krebs; Lord Layard; Earl of Leicester; Lord Mancroft; Lord Rooker; Earl Russell; Lord Trees; Baroness Whitaker.

Evidence Session No. 14

Heard in Public

Questions 105 - 118

Witnesses

[I](#): Daniel Zeichner MP, Minister of State, Defra; Emma Hardy MP, Parliamentary Under-Secretary of State (Minister for Water and Flooding), Defra; Emma Donnelly, Deputy Director for Clean Waters, Defra; Dr Bill Parish, Deputy Director for Air Quality and Industrial Emissions, Defra; Claire Northridge, Deputy Director for Services and Regulation Policy, Defra.

Examination of witnesses

Daniel Zeichner, Emma Hardy, Emma Donnelly, Dr Bill Parish and Claire Northridge.

Q105 **The Chair:** Good morning and welcome to the Lords Environment and Climate Change Committee. Today is the final session of our inquiry into the efficient use and management of nitrogen. I am delighted that we have two Defra Ministers with us this morning: a warm welcome to the honourable Emma Hardy MP and the honourable Daniel Zeichner MP. They are joined by their team of officials, and I thank them for making the time to be with us today.

I remind everyone that the session is webcast live on Parliament TV and that a transcript will be taken and made public. Witnesses will be able to review the transcript and make very minor amendments, should they wish. I remind Members that they should declare all relevant interests the first time they speak. Let us start with introductions.

Daniel Zeichner: I am Daniel Zeichner. I am the Member of Parliament for Cambridge, and I am the Minister of State at the Department for Environment, Food and Rural Affairs. My role is Food Security and Rural Affairs.

Emma Hardy: I am the Member of Parliament for Hull West and Haltemprice, and I am the Minister responsible for Water and Flooding.

Emma Donnelly: I am the deputy director for clean waters in Defra.

Claire Northridge: I am a deputy director within Defra in the Farming Countryside Programme, and I have a role that looks out towards farm regulation and farm advice.

Dr Bill Parish: I am deputy director for air quality and industrial emissions in Defra.

The Chair: We have heard that the Government's policy on nitrogen is fragmented and piecemeal. Why is that the case?

Emma Hardy: I shall illustrate some of the examples where the Government are working with other departments. One of the things that I am responsible for, as well as water and flooding, is looking at air quality. JAQU, the Joint Air Quality Unit, is a joint piece of work that we are doing with the Department for Transport, supporting local authorities in delivering a clean air plan. Any local authority with NO₂ emissions that are too high has to go on to this plan. Every couple of months, they have to report on the plan and how well they are delivering, and if they have two consecutive years of adhering to the plan then they can exit the NO₂ programme. That has proved really successful.

There are other examples of where we have been working well with other departments, but JAQU has been one of them. We have been working with DESNZ on legislation around diesel generators and anaerobic digestion—what we do with the digestate that comes from the process

during anaerobic digestion—as well as on ammonia from shipping, and shipping policies in general.

There is quite a bit of work where we are working with different departments, but the main one where I would say there is greater collaboration between all the different departments is the Circular Economy Taskforce. That looks at nitrogen in an entirely new way, because nitrogen has previously always been seen as something that we should be removing, rather than something that could potentially have a use of its own.

The Chair: We have a follow-up question on that Taskforce. For now, I really want to concentrate on the reasons behind the fragmentation and the piecemeal approach. How much of a priority is nitrogen management for the department? For example, have you ever come together as a department to take an overview of excessive nitrogen in the environment from its different sources and from its different sector sources? I wonder whether Daniel Zeichner would like to have an attempt at that.

Daniel Zeichner: You point to an issue around how departments are structured and the goals and objectives that we set. We will probably talk further, as we go through your inquiry this morning, about things like the food plan. It is into some of those discussions that we bring stakeholders from outside government, and we have cross-government working to look at a wide range of issues of which nitrogen would be a part. It is within other things that we would do that.

The Chair: We often hear the complaint that, not only does government between departments work in silos, but there are often silos within departments as well. We really have to overcome these barriers if we are going to get a holistic approach—but I do not want to encroach on the next question. I just want to know whether you think you have the framework, in the way that you work together as a department, to manage excessive nitrogen.

Daniel Zeichner: You highlight the point that, for a new Government coming in and observing how things have been structured for many years, there is a real challenge. There are arm's-length bodies and agencies, all of whom have responsibilities, and the point about how we bring it together to have an overall way of dealing with things is a point well made. Ten months into government we are trying to do a whole range of things, but I would argue that how we work to bring bits of the department together and work with other departments is one of the questions that we have been most exercised by. Hence the Circular Economy Taskforce, which my colleague has referred to, the work that I am doing through the Food Strategy Advisory Board, and some of the other structures that have been established precisely to meet some of the challenges that you are identifying.

Emma Hardy: Daniel has made excellent points. One of the ways in which we are attempting to do this is through the environmental improvement plan. We have promised a revision of the whole of the EIP,

and by its very nature that has had to bring all of us together in conversations to tackle some of these issues. Obviously, Daniel is responsible for everything farming, and I am looking at water and air pollution, but when we are looking at anything to do with nitrogen then we have to do that collectively through the EIP, and Mary, our Minister for Nature, is looking at how all these things interconnect within the department. Lots of the conversations and meetings that we have had, about setting targets and interim targets and actions that will enable us to reach the outcomes that we want, have necessitated us being together. However, as Daniel said, in coming in new to this and looking at it, there is always more that we can learn in how we operate and do things more effectively.

The Chair: I want to ask about an issue that may fall between several stools: nitrous oxide. Obviously, there are rising emissions of nitrous oxide from the agricultural sector. I do not need to tell you that nitrous oxide is a very potent greenhouse gas, nearly 300 times more potent than carbon dioxide, although it lasts 100 years rather than the possible thousands of years that carbon dioxide lasts in the upper atmosphere. Not only that, but nitrous oxide increases the concentration of stratospheric ozone and the ozone hole that we have been attempting to fix for many years is being made worse, with resultant increases in skin cancers and so on, so there is a public health dimension there.

NO_x, which are oxides of nitrogen at ground level, can produce more ozone, which impacts and stunts crop growth, so this is a serious issue. It arises mostly out of the agricultural sector—we have borne down on other sources quite effectively—yet Defra is not responsible for greenhouse gases, which are DESNZ's responsibility. How do you meet that dichotomy?

Daniel Zeichner: I am happy to talk about that from an agricultural perspective. You are right to identify the challenge. Through our various farming schemes—I may bring colleagues in who have more detailed knowledge of the finer points of them—we are trying to balance a range of objectives. Obviously, we are in a transition phase—we may well come on to this in more detail later this morning—from the common agricultural policy, which, while it had some broad aims, was not very precise, to a much more sophisticated system. We now have the environmental land management schemes, and we have many actions within those, some of which deal with these issues. However, I would be the first to admit that we are quite a long way from getting those schemes precisely aligned to the outcomes we are trying to achieve.

Going back to my colleague's point about the environmental improvement plan, that is what we are trying to do. We are working with other departments, including DESNZ, to make sure that our actions are aligned with the outcomes we are trying to achieve. I do not think that has been achieved so far through the agricultural transition, and that is what we need to do next.

Lord Ashcombe: Emma Hardy, you just mentioned the outcomes that

we all want. I would like a little more in depth of what those outcomes are.

Emma Hardy: The outcomes we want in terms of the use of nitrogen? There seems to have been a change in how we view nitrogen. We want to see it as a resource—I know we are going to talk about the Circular Economy Taskforce later so I will not go into too much of that now—but it is about how we are effectively using it.

I have been on some genuinely interesting visits. I visited a wastewater treatment works in Northumberland. I was fascinated by how they are using some of these chemicals as a resource. They were looking at whether they could use the ammonia that was produced from sewage treatment as a resource. Some exciting and innovative things are happening, such as in sustainable aviation fuel, where we are asking how we can use nitrogen in a different way. Obviously, these are not on the scale required to deal with this problem but, when we as a country are facing lots of different challenges in terms of our energy needs, I get excited by the fact that you can take something that is literally a waste product and turn it into something that is needed and can be used for fuel powering our aircraft.

So there is a different way of thinking about this. There are some exciting innovations out there that I want to use my position as Minister to champion, talk about and encourage. Those are some of the good outcomes that I would like to see. They would be great for the economy and the environment, and that is an exciting story to tell.

What I mean by good outcomes generally is that anything that delivers for the environment, delivers for the Government's mission on growth and reduces administrative burdens. Something that I hear often from farmers and anyone involved in this is that they find the system incredibly complex and complicated to navigate. One of the things we wanted to do with the Corry review was to look at the systems outcomes that we want from the legislation that we have and how we could make it more streamlined while maintaining effective environmental protection. The Corry review has really helped with that, and we are hoping that the EIP will flesh out some of the exact milestones for how we are going to achieve some of these different aims.

The Chair: That is excellent. I am conscious that the next question is very much on the same topic.

Q106 **Baroness Whitaker:** Thank you for coming with such a large panel. The Government's written evidence states the importance of the capture and reuse of nitrogen and of taking a whole-economy approach. It was confirmed to us by several witnesses—Tony Juniper, Dame Glenys Stacey and Helen Wakeham—that it was indeed important but not actually there yet. The Corry review also has a recommendation to streamline regulation. Do you support the idea of a holistic strategy to address nitrogen pollution? If so, what are your plans to develop it?

Emma Hardy: We regard having a strategy for nitrogen as part of the EIP rather than a separate document produced on its own. You will know that many things overlap when it comes to dealing with these problems. If we want to deal with the problem of nitrogen in terms of air pollution, dealing with how much we put on the land will help not only the water but the air. So many of these things are interconnected; we see that, if we want to deliver on our ambitions as a Government, we will want to put all of it into the EIP, making looking at how we protect and restore our natural environment part of that document. This is why it is genuinely helpful that you are doing this inquiry now: we are in the midst of writing our EIP, the strategy and our delivery targets, so it is timely that the inquiry is happening now because it will help inform that. As I say, it is all part of looking at how we can view nitrogen as a resource and capture and reuse it. I will try not to stray on to the next question on the circular economy.

Baroness Whitaker: My apologies; I should have declared that I live in a national park. When is your strategy likely to be published? Does it include the public health aspects—the kitchen hazards, road hazards and so on?

Emma Hardy: I am always so wary of giving dates as a Minister because I have learned that it is dangerous to do so, so I shall turn to one of my colleagues to give a general timeline. I know that we want to produce it before the end of this year but I do not know whether we can say anything further.

Dr Bill Parish: It is still a work in progress.

Emma Hardy: We will definitely be doing it after you have completed this inquiry, so that will be well timed.

Baroness Whitaker: What about the public health aspect? Are you incorporating that?

Emma Hardy: We have been talking to Sir Chris Whitty and the Health Minister about air pollution, because they want to do their 10-year health strategy and what we want to do about air pollution will have a huge impact on the health mission and prevention. On timelines, I am not sure which one will be published first, but, just a couple of weeks ago, I met the Health Minister and Sir Chris Whitty for conversations about what we can deliver in our EIP and in reducing air pollution, because that is crucial to health.

Earl Russell: In the answers that you have given us already, there seems to be a general willingness and openness to have a more holistic strategy around nitrogen. Are you able to say anything about some of the barriers you are finding and the ways you are trying to overcome those, in terms of trying to have more of a holistic approach to these things? Is that just too broad a question?

Daniel Zeichner: As we have been discussing, bringing together different bits of departments, different bodies that have different roles

and different government departments is a huge challenge. Many of us were forewarned of this before coming into government. It is a structural problem that we face, so I would not underestimate the challenge in doing this. Our approaches have already been outlined—the five missions that the Government have set out focus attention on some of this—but I would not underestimate the scale of the challenge. It may be that my colleagues, who have long experience of dealing with this, have something to add.

Dr Bill Parish: One perspective is the sheer complexity of the challenge. Nitrogen pollution cuts across many different economic areas, and we are working closely with DESNZ and other departments. There are situations where there are possible trade-offs that we need to consider between the policies that are needed for achieving the decarbonisation of transport, energy, et cetera. How do we anticipate and de-risk unintended consequences for environmental challenges—for example, managing digestate from anaerobic digestion? Also, because nitrogen is a water, air and land-biodiversity challenge, and because of our need to process food waste and so on, it is a really complex problem involving multiple teams. We use systems thinking, with the chief scientific adviser's office, to try to make sense of where our priorities should be in how we use our resources and energies most productively to achieve some of the priority wins sooner; we organise ourselves accordingly.

Q107 **Lord Duncan of Springbank:** There has rightly been quite a lot of discussion from you about leadership, which has perhaps been lacking in this area. A lot of the actual delivery mechanism will rest elsewhere; in the farming world, it will rest with farmers. I am conscious that there has been a lot of churn when it comes to funding for farmers—I am thinking of the sustainable farming incentive and so on—so what would you say are the principal routes by which farmers can secure funds to help them engage with the change that needs to happen? Which government funds are available to them? How will you make sure that they are aware of those?

Daniel Zeichner: That is a very big question but I will embark on it. As I have already indicated, we are in a period of significant change—probably the biggest change in farm support that we have seen for many years, in moving away from the common agricultural policy.

The principle of public money for public goods and environmental land management was broadly welcomed during the passage of the Agriculture Act and afterwards. The policy world has had quite a discussion about this but I, as Farming Minister, have discovered that perhaps not all farmers—quite understandably—were kept abreast of the likely consequences of the changes. We have moved from a system where, basically, everyone got payments based on the area of land they had, perhaps sometimes forgetting that there were expectations alongside that in the common agricultural policy—such as cross-compliance, which was not always welcomed, and a whole range of agricultural practices. That is where this is relevant to the nitrogen issue.

We have moved from that to a very different system, where the Government are now using taxpayers' money to pay for environmental goods and outcomes. That is where, as I referenced earlier, we now have a sophisticated system with many actions, particularly within the sustainable farming incentive, that are available to people. However, when I say "available to people", it is not a one-to-one transition; that is perhaps where some of the difficulties have come in, particularly recently. When we have a fixed budget and we offer it, which is what has happened over the past year or two, there comes a point where, in essence, the scheme is spent; that is the situation we reached a few weeks ago. For the individual farmer who is trying to find ways of dealing with the challenges that we have been talking about this morning, there are schemes available, but they have to be applied for at an appropriate point in the process and not everyone is always going to be successful in their application. I want to move us to a more targeted approach where we are clear about the outcomes that we are getting. If we can design the right action to tackle the nitrogen issue, we can see the outcomes we are getting.

Lord Duncan of Springbank: That is laudable, but I am very conscious that farmers who applied for the SFI in good faith will now find themselves struggling because, if they were not in the early tranche of payments, they will not secure the money for the change that you want to bring about. How, then, can you give confidence to the farming community that the money set aside is adequate for the significant challenges that you have acknowledged in this area?

Daniel Zeichner: There are a number of issues there. In an ideal world, we would have more budget to spend to achieve the outcomes that we are trying to achieve, but we have to work within the spending envelope available to us and prioritise within that. As my colleague has outlined, we are trying to achieve a range of outcomes, but this is one of the important ones. The money spent on behalf of the public has been allocated, and we hope we will get the good environmental outcomes we want from that.

In answer to your question about how people feel about it, I quite understand that those who are not in the scheme—although it should be said that we have record numbers of people in environmental schemes, which is a good thing, but some did not make it—will be looking for the new scheme, which will be unveiled later this year after the spending review. I urge some caution in the sense that, optimist though I am, I acknowledge that my Treasury colleagues are working in constrained circumstances as well. We have to be realistic about the amounts of money that are likely to be available.

Lord Duncan of Springbank: On where nitrogen lands—the priority that it will represent within future schemes—can you give any indication of where nitrogen and the various management challenges would rest in terms of funding?

Daniel Zeichner: That is an important question. At the moment, the way the schemes that we inherited were structured meant that there was a wide range of options for farmers to choose from, but in a way that was an individual farmer's choice, and there was no prioritisation from the Government's point of view. Now we have a sophisticated set of levers, and the discussion that we are having with key stakeholders is about the basis upon which we allocate in future. That is an ongoing discussion. My colleague Claire will have some details to add.

Claire Northridge: You mentioned the complexity of funding and so on. Something that is important in our provision to farmers is making sure that we have advice provision. The Catchment Sensitive Farming scheme offers one-to-one advice to farmers as well as webinars and other ways of engaging, which work with farmers to signpost the different grants available. We had, and we will have, lots of focus on nitrogen in the sustainable farming incentive, but we also have a range of offers in our Farming Equipment and Technology Fund. The latest round was in 2024 and we funded over 250 low-emission spreaders. I say "we" funded them, but actually farmers also funded them; farmers have to partially fund the equipment. We also funded 70 slurry separators through that initiative along with over 100 robotic slurry pushers. These are all part of getting tried and tested techniques out on farms to lower emissions.

We are about to open the application for the next round of FETF on 29 May, which will contain productivity items and slurry management items, both of which should help with nitrogen. We have the Farming Innovation Programme, which is less directly aimed at individual farmers but instead thinks about how to ramp up working with industry and innovators on the technology to help us to get the materials to land in a way that means they can be spread according to crop and soil need, which is critical for capturing nitrogen. We are investing £15 million, I think, in the latest round of the Farming Innovation Programme on a nutrient management theme, where one of the projects is looking at how to process digestate even more effectively, while another is looking at cutting-edge technology in processing slurry. So there is a range on offer. I come back to the fact that having advice to help farmers to navigate is important.

Lord Duncan of Springbank: Is the advice funding ring-fenced? Even when the funds are finished, is funding for the advice secure so you can still tell people what is going on, even though that is for the future?

Daniel Zeichner: Indeed. Part of the complexity is that the department operates a range of funds. I have some quite good stats on Catchment Sensitive Farming if that is helpful.

The Chair: We will come on to that; we have colleagues waiting to ask similar questions on it.

Baroness Whitaker: Do you support the development of a national nitrogen budget like the one they have in Scotland?

Emma Hardy: We have been looking at what they are doing in Scotland and are interested in it. At the moment we have not concluded that we would do the same, but we are interested in following how they have done it. As Bill was pointing out, we have the same systems-led approach with the chief scientist as they do in Scotland. We are watching it with interest.

Baroness Whitaker: If you decide to adopt it or a version of it, perhaps you would let us know.

Emma Hardy: Of course.

The Chair: Before we have a budget, I suppose we ought to be able to quantify how much nitrogen in its different forms is out in the environment that is not being utilised for crop growing or whatever. Do you have a good handle on that?

Daniel Zeichner: Better data would help to inform our decisions in general. One of the observations that I have made in my time is that we often know how much money we spend but, frankly, we do not always know what we are getting for it.

The Chair: So before we have a national nitrogen budget, we ought to know how much we are dealing with already.

Daniel Zeichner: Nicely put.

The Chair: There is a big gap there for work that needs doing.

Q108 **Lord Krebs:** I want to ask about regulation. We have heard that there are a number of regulations on farmers related to nitrogen management; I counted about half a dozen. On the other hand, we have also heard that there are high levels of non-compliance, so roughly 50% of farmers are not complying with the existing regulations, while, according to the Corry review, about 28% of farmers do not understand the regulations. You have referred to advice, but whatever advice they are getting is leaving some quite big gaps in understanding. Also, sometimes the regulations are guidance rather than mandatory requirements. We note that in the Netherlands, where they have taken a more rigorous mandatory approach, they have had a much more successful reduction in ammonia emissions from farming—64% since 1990, as opposed to 14% in this country.

So my question is: why are the measures voluntary and why are they not enforced more stringently? What can be done to improve compliance with the existing regulations? You have already referred to the fact that you think the regulations may be too complicated and farmers have difficulty navigating regulations, so is it about simplifying them? Is it about providing more advice? Is it about the Environment Agency engaging in more enforcement? We were told that the Environment Agency has prosecuted two farmers for non-compliance in the last 12-month period, which seems pretty low to us, given the high levels of non-compliance.

Daniel Zeichner: That is a very good question and I suspect it has a complicated answer. I will give it a try. In fact, I have been struck by just what a long-running question this is. I was doing some background reading; some of you will remember the academic Philip Lowe from some years ago, and I was reading one of his books from the late 1990s where exactly the same questions were being discussed, so this is a long-running issue.

You are right to say that it is a mixture of regulation, voluntary guidance and so on. That is a historical approach, and we can see the problems and the complexity that it has led to. Tom Bradshaw made the point in his evidence to you that farmers are genuinely confused about the requirements on them.

To some extent, we have asked them to produce more and more food. We are now, quite rightly, asking them to do a whole range of more complicated things. But it is a transition. I am very keen that we work with farming organisations and farmers to move us to a much better place. As you say, the Corry review has made some recommendations.

There has been a shift in recent years. Funding for farm inspection has improved. Environment Agency farm inspection staff have more than tripled from 30 in 2020 to 100. Last year, 4,000 Environment Agency visits to high-risk farms had an impact. Farmers have completed over 6,000 improvement actions as a result of the 2024-25 inspections.

Going back to our previous points, we are seeing a high level of SFI uptake, some of which will include measures to tackle some of these issues. We have heard from my colleague about the £15 million in innovation funding to create better nutrient management solutions. There are a range of measures in process. As a consequence of your inquiry and of us being mindful of the need to improve the environmental outcomes of the agricultural system as a whole, this is work in progress, but we are very determined to get that progress.

Emma Donnelly: Building on the Minister's comments, the Government plan to start a process of reform of the farming regulations in the coming weeks. This will bring together farmers, environmental NGOs, citizen scientists, all those who are concerned about the quality of the environment and the impact that farming has on it, to look again at the regulatory regime. We recognise that it is very complex for farmers to engage with. Tom Bradshaw made that point when he gave evidence to this committee. There is also the question of how effective those regulations are, collectively, at reducing the impact of farming pollution on the environment and on water.

Lord Krebs: If there is any more detail that you could give us in writing, that would be great. On whether 4,000 is a big number or a small number, there are 100,000 farms. On the basis of 4,000 a year, it would take you 25 years to get around them. But the Environment Agency told us that it aims to increase to 10,000 a year, which would be a 10-year cycle to inspect all the farms.

Q109 The Earl of Leicester: I declare my interest as a farmer on a large mixed farm up in north Norfolk with livestock and arable, practising regenerative practices.

I was very heartened to hear Minister Hardy refer to nitrogen as a resource rather than waste. With our potato business, in three years we managed to reduce nitrogen usage by 37%. That might be one way of encouraging farmers to acknowledge these various regulations and comply with them, because that led to a tangible saving of money for us.

My question is related to this. Do you think that the environmental land management scheme, and the catchment-sensitive farming scheme, could be improved regarding nitrogen management to increase effective nutrient management?

Daniel Zeichner: It is very good to see you. It is a very good question. I suspect that the answer is that they can always be improved.

The catchment-sensitive farming scheme has been in place for many years, and perhaps this is the appropriate moment to mention the statistics that we have on it. Where that advice has been given, occurrence of serious water pollution incidents has been reduced by 17%. It led to the implementation of over 15,000 actions by farmers in the 2023-24 financial year. I welcome the evaluation that has been done because, with all these schemes, we ought to be evaluating the outcomes.

In phase 1, it estimated a reduction in annual agricultural pollutant losses of 4% for nitrogen, 5% for dissolved phosphorus, 8% for total phosphorus and 12% for sediment. That says to me that where the advice is available, it works. That is very much borne out by your experience. There are things that can be done. However, farmers do need guidance, help and advice, and it is very important that the department makes those available to people.

On the wider question around the environmental land management scheme—you must stop me because I can probably speak for hours on this, and you do not want that—I am really excited by this transition. It is a huge opportunity to do something quite important. We have talked about one element of it, the SFI, but there are a number of elements to the schemes. In terms of your inquiry, we need to work out what our priorities are. My job title is Minister for Food Security. I take that very seriously. We need to produce food in this country, but in an environmentally sustainable way. That is the balance that we are trying to achieve. The schemes that we are working on developing and improving—because we are learning as we go along—can be designed and tailored to assist farmers. However, it is a very different challenge in different parts of the country, which we are also trying to balance.

There are a number of things that we are trying to do here. I pay tribute to the previous Government for starting the transition, but there is a lot of work to be done to make sure that it can be tailored to achieve the

outcomes we are trying to achieve. Your inquiry is very important in raising the significance of nitrogen within this. We will certainly be taking away your conclusions and looking at how we can build those into the schemes as they are iteratively developed over time.

The Earl of Leicester: Nitrogen has been the elephant in the room. People have been much more interested in carbon, et cetera. In the various Government departments, particularly yours, is there a growing realisation that nitrogen has to be given a lot more attention than in the past?

Daniel Zeichner: Partly, for the reason that my colleague so eloquently outlined earlier, we see it as an opportunity: that nitrogen is a resource. This feeds into one of the top lines that our Secretary of State outlined when he was appointed: that the circular economy is important not only in itself but in repositioning our department as a growth department. We genuinely see real opportunities here. We want to reframe the whole waste discussion and see it much more as an opportunity.

This is a bold ambition that would be broadly welcomed, but we need to find ways of making it possible for all farmers. We see very progressive, engaged farmers taking advantage of these opportunities and schemes. The challenge for me is to make sure that we can roll that out and spread that to many more, who perhaps do not always have access to the advice and the support that would enable them to do it.

The Earl of Leicester: That is very true. My concern is that with the SFI being cut off on 11 March, the progressive farmers all knew what they were doing, applied and received the grants, whereas the smaller farmers with less time on their hands got left behind. They are the ones who are really going to struggle now.

Daniel Zeichner: I absolutely hear what you say. It is reflected in what others have said too. The problem that I inherited as the incoming Minister was that it was a "first come, first served" scheme, not designed to prioritise in the way that I have been discussing this morning. We wanted lots of people in the schemes, because for a couple of years the problem was not enough uptake. As I say, we have a sophisticated set of levers, but we now need to apply them in a better way.

We have an opportunity in the redesign process, in consultation with everyone who has an interest, to work out how we can prioritise more effectively. This time last year, it was essentially an attempt to get people into the schemes.

Q110 **Lord Ashcombe:** You mentioned food security, which is important. When you are applying these schemes and everything else, there are times when production may go down a bit. Do you balance that with the pollution effects of importing food that we then become reliant on? Just because we are in a better position does not mean that the world is. There are two sides to this equation. We cannot just ignore the world on the basis that we are a goody two-shoes.

Daniel Zeichner: That is an important observation. You are right to say that we do not want to export lower welfare or environmental standards. That is why it is so important that, when we make the kinds of agreements that I am pleased we have made over the last few weeks, we secure our standards in those agreements. As you say, there is absolutely no point in exporting environmental harm to other countries. That does not solve the wider problem.

Lord Ashcombe: There are lots of rules regarding nitrogen pollution in water, including the farming rules for water, the nitrate-vulnerable zones or indeed the rules on the storing of silage, slurry and agricultural fuel oil. I think there are plans to take into account air pollution from ammonia and nitrous oxide, but I am not sure what they are. There is a huge amount of focus on water, but not so much on the air, and we have heard a little this morning about the damage that ammonia and nitrous oxide do to the air.

Emma Hardy: My feeling is that, if we could tackle how much we were putting on to the land and make sure that we were not oversaturating, the land would actually be helping water and helping air. You mentioned the farming rules for water, to which we are imminently going to be publishing some updates. My colleague talked about the co-design that we want to do. We are getting together all interested parties and stakeholders—Daniel and I will be co-chairing that—to look at the future of farming rules for water, as well as how ammonia should be addressed, because these things will all help each other. If you are looking at addressing the problem that we have a huge runoff into water, that means you are putting too much on the land to begin with, and if you are putting too much on the land to begin with, you are creating more pollution in the air.

I think we can do this holistically. There are some existing rules around nitrogen management that provide co-benefits for ammonia reduction, and, as my colleague outlined, we are putting together this new group. We should be announcing in the next few weeks—definitely before the Summer Recess—who is going to be in the group and its terms of reference. We absolutely hear what you are saying. You are right that we need to be thinking as seriously about what is happening in the air as we are about what is going into the water. That fits in with the point that I made about the conversation I was having with Sir Chris Whitty and the Health Minister about all the damage there is from air pollution. The statistics about the mortality impact of air pollution show that it is a serious issue. I am keen to work on it with the Department for Health as well, because we need to be looking at this not just as a farming issue but as an issue that impacts everyone.

Lord Ashcombe: It is an even greater environmental issue. When we were in the Netherlands the other day, we saw the absolute damage that pollution is causing; they have a much heavier issue than we do. That does not mean we do not need to do something about it, but, when we see trees dying and vegetation changing as a result of nitrogen oxide,

that makes us very conscious of it. I know we have the Atlantic a bit closer to us and that sweeps in a lot of clear air, but sometimes it blows the other way.

Emma Hardy: I completely agree. I can see that my colleague is desperate to come in.

Dr Bill Parish: At the moment, we have a paucity of specific rules for reducing ammonia emissions from farms. However, as the Minister said, we want to look at this from the farmers' perspective. I do not think it is helpful to have a separate set of rules for air and a separate set for water. We are going to simplify our ask for farmers. There are opportunities to take an integrated approach to how nutrients are managed on a farm. A farmer can achieve both outcomes—water and air pollution reductions. My team is working closely with Emma's team on water quality to ensure that our emerging set of rules captures what needs to be done for air as much as possible.

There are some tricky areas where there are possible tensions, but we need to equip farmers with the guidance by which they can assess how they apply nutrients to crops, because the one thing they do not have control of is the weather. It might be unexpectedly warm, in which case there is more evaporation. Depending on the way they farm, they might be able to incorporate that in order to reduce the level of evaporation, while reducing the amount that gets washed away as well.

To an extent, it boils down to how nutrient management plans are developed by farmers. I think our emerging farming regulations will help, and water regulations will help to empower farmers to make those well-informed decisions. The other issue is how they manage, for example, housing and hard standing—cleaning up the farmyard in a way that reduces water pollution. Manure application and fertiliser application are responsible for quite high percentages of our ammonia emissions. Improving the way that they are applied and putting just what the crop needs at the right time of year will help with water and air pollution at the same time. We want to look at opportunities for how we can integrate this and simplify our ask of farmers, so we are looking at what they need to do, rather than having complex sets of legislation where there is scope for conflict and confusion.

Lord Ashcombe: It is essential that we try to reduce regulation but make it more beneficial to everyone, including farmers, because they are at sixes and sevens half the time.

The Chair: Can you provide us with more background to the nutrient management plans? I am not sure I fully understand which nutrients are included there—whether micronutrients, trace elements and so on are included and what the plan actually entails. That would be very helpful.

Q111 **Earl Russell:** I turn to the Clean Air Strategy and the recommendations around it, particularly about using low-emission manure spreading technology techniques, which are to be introduced by 2025, and the

covering of slurry stores, with a date of 2027. I want to pick up where the department is with that upgrading and the delivery of those measures.

Emma Hardy: I want to say from the outset that we recognise that an awful lot of ammonia pollution comes from agriculture. There has been a fairly good uptake on the low-emission spreaders. I think my colleague mentioned—

Earl Russell: We had some discussion and you gave us some figures in a previous answer.

Emma Hardy: She has run through some of the data and the figures on how many have been funded and how many farms are now spreading using low-emission techniques. Only 32% are using lower-emission techniques on grassland and 33% on cropland, and obviously we want to increase and improve that number. We are looking at how we can keep improving and increase the uptake of low-emissions technology in working with the farming sector. I can see that Claire wants to come in and talk about the road map and how that is going to happen.

Claire Northridge: For us, doing this through the road map, bringing in lots of different views and understanding what the barriers are, is really important. Take low-emission spreaders or slurry store covers, for instance. In working with farmers, we understand the reasons why, in some areas, the uptake is more difficult. With low-emission spreaders, a couple of years ago we discovered that up on Dartmoor lots of low-emission spreaders are not easy to get through the very narrow gates or over the little bridges. This is why, in how we evolve our grants, we looked at putting in money and highlighting that there are now low-emission spreaders that fold up and are smaller in reach, which can work for those places.

With slurry store covers, again, until you talk to people, you often do not understand what is stopping them doing something. We have heard that farmers are rightly worried about health and safety, the emissions from slurry and about covers. There were no building standards. We have been working with industry on producing a set of building standards for slurry store covers, so that people can feel more reassured in putting those on.

Through that road map work, we will continue to listen and learn, and will adapt our policies and try to bring people together to find ways of making this happen.

Earl Russell: Interestingly, a lot of what we are discussing today is this interface between policy and practice. It is important that policy is communicated well to farmers and through trusted means, and that through those dialogues practical problems are overcome. Obviously, there is more to do in this space. This is one of the easier fixes to get right and to reduce these leakages.

On the road map, what comes next to bump up these figures? Picking up on Dr Parish's point, on this practical dialogue, should it be like a weather

forecast for wind, so that farmers are not using nitrogen when they should not be? Is that something that we might look at?

Claire Northridge: It is a great idea.

Earl Russell: I was thinking of it on a regional basis—it is going to rain tomorrow.

Claire Northridge: I might get this wrong, and will follow up with written information, but I think some work has been done in Wales on very specific forecasting that farmers can use. That is an example of a good opportunity to use the amazing Met Office systems to help control emissions and get nutrients to where need them.

Earl Russell: On going beyond the 32% and getting these materials out and getting more funds to farmers, what is next in this space to get more low-emission spreaders and more covers?

Claire Northridge: My hope would be that we continue with a suite of interventions.

Daniel Zeichner: That will be one of the questions that we address when we come to look at what resource is available to us after the spending review. I emphasise very strongly that SFIs are three-year agreements. Some of the other agreements are for as long as 10 years. To some extent, we are constrained, and obviously we will always honour those agreements.

Earl Russell: On your long shopping list, this would be one of the priorities for fighting your case.

Daniel Zeichner: It is one of many things that we are trying to decide between, but we can see the effect that this has had. We would encourage the sector to work with us on that.

The Chair: It is low-hanging fruit. Making some progress on that would be very helpful in reducing waste nitrogen.

Q112 **Lord Mancroft:** I have a more specific question. Do you have any plans to expand environmental permits and regulations to smaller pig and poultry farms, and to extend them to dairy and cattle farms?

Daniel Zeichner: This is a really important question. The larger pig and poultry units are required to hold a permit and apply best available techniques. That sector contributes around 20% of agricultural ammonia emissions, and we think that works pretty well.

The question then is whether it is appropriate to extend it. My understanding is that, back in 2019, the Clean Air Strategy set out plans to extend permitting to dairy and intensive beef farms, but those were not taken forward.

As we are looking at the farming road map for the future, we will be discussing the possibility of moving to more permitting. Obviously, that

involves increased bureaucracy for farmers, which is not always welcome. But I also recognise that, if we are trying to make these improvements, having a proper regime within which people can understand how they are working might be appropriate. It is certainly under close consideration.

The Chair: We heard in previous evidence sessions that planning permission for agricultural buildings is not required. Is that something that you would be looking to address?

Daniel Zeichner: The whole planning piece is very relevant, quite frankly. As we try to improve a whole range of processes—I am thinking particularly of some of the welfare requirements in the poultry sector—unless farmers can get permission to build new plants,¹ it will be very difficult to make the kind of improvements that we are looking for. We are working with colleagues in MHCLG on ways to make it more possible to achieve these outcomes.

We need a public discussion around this. Quite often, there is a strong reaction to a suggestion of any change, at the same time as people wanting improvements. Those two things are in conflict. We need to explain to the public that, if they want, as they say do, better welfare and better environmental conditions, that will require new plants,² which will require planning permissions to go ahead. We are very engaged in that discussion.

Q113 **Lord Layard:** Can we come back to the Circular Economy and the issue of the recovery and reuse of nitrogen, and the benefits of that? What would you say about the extent to which you are, in the department and in the Taskforce, promoting that objective? Can you say a bit about how and what kind of progress you have made, both in agriculture and in water?

Daniel Zeichner: To be fair, we are at a relatively early stage in this process. The establishment of that Taskforce is the beginning of the policy discussion. To translate it into practice—this goes back to some of the points made earlier—is a much bigger project, but the commitment in policy terms is an important one and will inform the direction of much of the policy discussion ahead.

From the agricultural side, some of the potential economic benefits of reusing substances which have in the past been seen as a negative is really important. As I said earlier, as we focus on growth and productivity, this is a key resource for making the system work better. It is a virtuous circle, if we can make sure that people appreciate that. As we heard earlier, it is quite possible to derive good economic benefits from much better environmental practices.

Emma Hardy: I see it as quite exciting. It was set up only in November 2024. It has experts across industry. I was just checking all the different departments that are involved—Defra, DESNZ, DBT, MHCLG, DFT and, of

¹ Note by the witness: this refers to new livestock housing plants

² Note by the witness: this refers to new livestock housing plants

course, HMT. It is exciting for delivering our Government's ambition for growth but also as a new way of using some waste products.

I mentioned that I went to Northumberland, where I saw what they were doing with the waste from sewage treatment, but I went to Anglian Water as well. That interested me. Anglian Water is doing a pilot project, using some of the heat generated from the treatment of wastewater to grow tomatoes. I had better not mention which supermarket's tomatoes they are in case that puts any of you off, but they are using the heat for that.

Different companies are also looking at how we can potentially use the heat in council heat networks, and they are turning this into sustainable aviation fuel to look at whether we can use it for flying planes around the country. When I went there, we had recently announced the building of the third runway at Heathrow. I thought how incredible it would be in future to have our aeroplanes fuelled by the methane and the gases that we produced from a waste product that is produced in huge quantities up and down the country. That is exciting and innovative; it is an opportunity for growth and to look at things in a different way. Yes, it is complicated, and some of these things are in an early trial, but only a few months after we came in, in July, we have set up this Taskforce and got the departments working together—I should stress that that is led by my colleague, the Minister, Mary Creagh—and there are huge benefits.

I was interested in the contribution from one of your colleagues about how using nitrogen in a more precise way can save farmers money. There are other things to look at too, like how we use the digestate from anaerobic digestion, if we are going to go down that path, and Defra was talking closely to DESNZ about that, so we do not have unintended consequences. That is an exciting area to be thinking about and looking at. Obviously, we are at the early stages but sometimes it is possible to have a win-win, and that is something that could be. It could help farmers to save money and it could help the environment.

Lord Layard: Is there a timetable for the work of the Taskforce?

Emma Hardy: I know they started in November and they are working right now, but do we know what timetable we are expecting?

Emma Donnelly: I think we need to get back to you with that information. I do not have it to hand.

Daniel Zeichner: I would rather hope that it is ongoing, frankly.

Emma Hardy: It is now, yes.

Daniel Zeichner: You can detect some real enthusiasm in this space, but it links to many other things as well. Some of the recycling changes that have been made are expected to increase the amount of food waste that will be collected. That will feed in to the anaerobic digestion system, which in turn will produce some of the digestate—used properly—to feed in to the farming system. We have to make sure that that is done in the right way, which is why many of the things we have been discussing this

morning are important, but I hope you are hearing the real commitment to seeing what were once waste products in a completely different light—as an opportunity for the future.

Lord Krebs: I want to pick up on a point that Emma Hardy made about innovation. If we are going to move towards a circular economy and achieve the wonderful vision that she presented to us a moment ago, there has got to be quite a lot of R&D to underpin that. I have three questions in relation to that. First, are we learning from what other countries have done? As you know, we visited the Netherlands and saw how they are recycling animal waste.

Secondly, on our visit to the Netherlands, we were impressed by the fact that Wageningen University is a major centre with university labs, government labs and industry labs all working together on the same campus. Do we need anything like that in the UK? As far as I am aware, we do not have it.

My third question is really about funding. I see that Defra has a £15 million farming innovation programme encouraging the recycling of organic nutrients. Having spent much of my career as an academic, £15 million sounds like a big number but, when you look at the scale of the problem, it is actually quite small. Are you working with other funders like BBSRC to amplify that money so that serious money is put into this, because it is a serious problem?

Emma Hardy: On the details of who they are working with on the Circular Economy Taskforce, I will get back to you because I am not the responsible Minister, although I am a huge fan of what is happening. The fact is that there is interest from other industries, particularly the water industry, because they recognise that they are under a lot of pressure to improve, quite rightly, and they were going to move on to that. So there is some interest from industry. There is also the £15 million innovation fund, which you have mentioned, there is £12.5 million of research on reducing farm emissions and there is £12.5 million of R&D looking at precision-bred crops, so there are different pots of money going into it.

I can ask the department to get you a follow-up date on the Circular Economy Taskforce and where it is up to in its deliberations, but my feeling as a Water Minister going and talking to all the water companies is there is real interest. They recognise that there is a problem and that there is improved scrutiny of what they are doing with wastewater treatment plants.

Daniel Zeichner: I will add that you would probably expect the Cambridge MP to have a view on innovation. I suspect there will be people at the research park in Norwich who will feel that a lot of good work is being done, and indeed in Lincoln, but there is always scope for more.

On the R&D funds, there is sometimes a confusing plethora of funds. There are more: there is a £12.5 million fund to support collaborative

research into ways to reduce farm emissions, and a £12.5 million competition to look at how we might use precision-bred crops to improve yield, reduce chemical inputs and enhance disease resistance. That is obviously quite a topical issue in its own right, but there are some striking things that we might be able to do there. I announced a few months ago a new Accelerating Development of Practices and Technologies Fund, which will provide a further £20 million of funding to trial new technologies. So there are a lot of opportunities in this space. I was at Harper Adams only a few weeks ago looking at some of the agritech schemes there.

I go back to my earlier comment: for people who are excited, engaged and ready and willing to take up these new technologies, there is a wealth of opportunity. My worry is how we make sure that that is spread to the much wider group of people, because that is where the bigger challenge probably lies. That is a broader question, but I hope I can reassure you that the department is well engaged in trying to support R&D, because that is going to be our future.

The Chair: If Ministers are not able to provide an answer now about the Circular Economy Taskforce, maybe they could undertake to provide a written response. It is all very well having the Taskforce and the wonderful and exciting work that it is undertaking, but who will be responsible for delivering its findings?

Daniel Zeichner: You have hit the nail on the head there, Chair. This goes back to the discussion we were having right at the beginning: as we are bringing various government departments together, the delivery will have to be by the appropriate department for whichever decision the Taskforce comes to. But one should not underestimate the significance of having all those actors working together in a way that perhaps has not always been achieved in the past.

The Chair: Who will have oversight of the whole plan and the holistic vision?

Daniel Zeichner: That is with us.

Q114 **Lord Jay of Ewelme:** I have one question on the Circular Economy. I went to an interesting presentation yesterday by Drax. They were talking about the possibility of using chicken waste from the River Wye and elsewhere as a feeder for Drax or indeed for other power stations. Is that something that you are thinking about? Is it for you to encourage, or is it for the farmers to just go ahead and do it?

Daniel Zeichner: This is quite a complicated issue. I have been to the Thetford power station, for instance, which uses waste. That is quite an effective way of using it, but it is very reliant on some of the schemes that DESNZ currently supplies, and there is an ongoing discussion there. It requires public support to make the economies work, but I am certainly interested in watching closely and working with colleagues to try to get a

good outcome from that, because we know there are a big set of questions about waste in the River Wye area.

Lord Jay of Ewelme: It certainly struck me as a very interesting idea.

If I could just come onto water, which I suppose is a question for the Emmas. The OEP's latest progress report assessed that meeting water quality targets is largely off-track. We have also heard that current approaches to managing nutrients at a catchment level are not all that they might be. We have just talked about problems in the River Wye. There are a lot of tricky issues here. What are you going to do to put it all right?

Emma Hardy: It is our priority. I am sure that you have heard me, the Secretary of State and Defra say repeatedly that cleaning up our rivers, lakes and seas is a priority for Defra. When we came in, we were clear that it was one of our five priorities. We have restructured the department to reflect that. We also know that some of the short-term fixes that we have tried to introduce are not dealing with all the problems that we are facing. You are right that we are not on track to meet the commitments that were made previously.

This Government are looking at the water commission and at holistic change. Yes, you can fix this bit and try to do that bit, but we need holistic change in the water industry. Sir Jon Cunliffe's Independent Water Commission is the first time that we have looked fundamentally at the entire way that water works for 35 years, since privatisation, and asked serious questions of whether it is set up in the way that we want it to be.

Over 50,000 pieces of evidence were submitted to Sir Jon. He gave a statement when the call for evidence opened, recognising that there are problems with regulation. We know this, because if there were no problems with regulation we would not be in the situation we are now. We want to be looking at water but water in terms of the environment and public health. We have lost sight of why we introduced water legislation in the first place—it was because it was a huge public health issue. We will be looking at customers, of course, and at engineering and investment. Sir Jon is looking at catchment-level partnership and water management more holistically and at how we are managing water in particular areas.

His interim report will come out imminently, in the next couple of weeks. Everyone will be able to respond to his interim findings. He will then publish his final set of recommendations at the end of June or the beginning of July.

We all know that the levels of pollution are unacceptable. We have massively increased enforcement with the Water (Special Measures) Act. Some of you may have seen the news yesterday, where we were talking about Environment Agency funding to increase the number of water inspectors and therefore the number of prosecutions, to show that we are

serious about people being held to the regulations that currently exist and about reshaping them for the future.

We need to work with farmers on this and have their support. There is a very ambitious Environment Agency target. We are looking at the EIP interim targets, because we know that more work is needed.

I am pleased that you mentioned the River Wye. I was there a few months ago and I was delighted to be announcing the £1 million fund, jointly with the Welsh Government. The previous Government's River Wye scheme was only in England, which, if you know the River Wye, is a bit of a problem. We have announced that jointly with the Welsh Government, and will look at doing some research into the sources of pollution in the River Wye and where it is all coming from. This has been given a £1 million budget to interrogate that. It is only by looking at the entire catchment of the River Wye that we can fully understand what is causing the problems and come up with solutions.

This is incredibly important to us, and to me personally. We need a serious look at how we have ended up in this situation and what we can do, fundamentally, to change it all going forward.

Lord Jay of Ewelme: Do you wait for Sir Jon Cunliffe's final report and then decide what to do, drawing on his conclusions? What is the process, going forward?

Emma Hardy: His interim report is coming out very soon, so we will have a good understanding of some of the problems that he has faced, but most people recognise that there is a problem around regulation. This has come out consistently. If you talk to the environmental groups or farmers, you find they mostly agree on the key themes of where improvements are needed.

We are looking at potential further primary legislation, a new water Act, but it depends on what he recommends. Some of it might be able to be reformed without primary legislation, but the expectation is that some primary legislation will be required to implement his recommendations. That is the level that we need to be talking about here. The time of looking at small tweaks here and there has passed. It is not working, and most people accept that it is not working. That is why this review is so important.

Lord Jay of Ewelme: You are talking about quite a long-term and major reform of the present processes.

Emma Hardy: That is the expectation. I genuinely do not know what Sir Jon will recommend. When he published his call for evidence, he published a very detailed document of a few hundred pages articulating all the problems that he had been presented with when he made the call for evidence asking for suggestions for solutions. The problems are well understood.

One of the positives is that most people are quite clear, and there is a lot of unity, on where the problems are. When he produces his interim report and starts talking about the solutions, we will see whether the level of unity holds, but we need to be thinking about this more seriously and thinking about more holistic changes. We all know that it has not worked, because we would not be in the situation we are if it had been working.

Q115 Lord Jay of Ewelme: On waste management, you have spoken about the excitement that you felt when going to various waste management plants, which is a nice idea. We read a lot about sewage overflows into rivers and lakes, such as Windermere. Are the present arrangements adequate or do they need reviewing or changing to stop that, as well as using the encouraging bits of waste treatment that you have been talking about?

Emma Hardy: Only a Water Minister could be excited by a visit to a wastewater treatment plant—I have definitely been given the right job.

On Windermere, we made a commitment some months ago when we went on our “Things Can Only Get Cleaner” tour, looking at water. A commitment that we made was for a future where there would be only rainwater into Windermere, which is incredibly important. It is such an iconic site, which means so much to the to the UK.

What do we need to do in wastewater treatment? First, and this is why yesterday’s announcement is so important, we need to enforce the rules that we already have.

Lord Jay of Ewelme: Can you do that? Do you have the inspectors? Do you have the enforcement mechanisms? It is easy to say that we need to enforce it better, but it is much harder to do it.

Emma Hardy: Since July, we have recruited another 400 people to do water inspections. I think that water inspections have increased by 148%, but I can get you the exact figures.

Lord Jay of Ewelme: That would be helpful.

Emma Hardy: We currently have 81 ongoing investigations, and this year we have had three court cases involving water companies. There are seven cases waiting to go to court. We are serious about enforcing the rules that are already there. Also, through the commission, we are looking at all the rules and regulations that we have.

With wastewater, it is mainly phosphorus; with agriculture it is mainly nitrogen. Many of the NGOs are very concerned about the levels of phosphorus in some of the water and what we are doing about it.

We have just announced a £104 billion price review over the next five years; £800 million is for water companies to reduce nitrogen using what they call traditional solutions of reducing nitrogen, with £250 million for reducing nutrients through catchment and nature-based solutions. I am really interested in this.

If any of you popped to the Chelsea Flower Show, there was a garden on display, half of which contained polluted water, with reed beds and impressive planting, and half of which showed clean water afterwards and how plants can be used to filter nitrates.

It is important that we have high standards for what ends up in our rivers, lakes and seas. The £800 million is for traditional solutions, but we are looking at £250 million for nature-based solutions. How can we use reed beds? I went to Wessex Water, which has set up big reed beds which the water can go through and be naturally filtered in a very nature-positive and friendly way.

There is a lot in this next price review. To make sure that they deliver on the price review—we know that in the past they have not always delivered on the price review promises they have made—we have a water delivery Taskforce. We look at some of the big projects from the water companies and, a bit like a Gantt chart, where they are in terms of delivery and the potential obstacles in the way of delivering on all the promises they have made for the price review. We need them to put this investment in if we want to clean up our rivers, lakes and seas, but at the same time we need to be looking at all the regulation around it. So there is an awful lot going on in the water space.

Lord Rooker: Your enthusiasm is obvious. You will be even more excited if you visit the treatment plant at Coleshill, just outside Birmingham. Famous TV programmes have been made about it, and it is fascinating.

Before I ask about the Clean Air Strategy, I want to go back to one of the answers you gave earlier, when I did not want to interrupt. It was about the chicken waste. Some 27 years ago when I was in your position, literally joining the Government, although I was not dealing with this, I understood that there was one power plant in the country that took chicken waste from the whole nation as its fuel. It was in Lincolnshire or somewhere like that. We mentioned it once in one of our inquiries, but I am not certain whether it is still operating. It was fed entirely by the chicken waste collected nationally, which seemed a good idea. I remember Elliot Morley talking about it. Do you know whether that still operates?

Daniel Zeichner: I do not know. As I say, I went to Thetford, which is one of the power stations that operate on that basis, and there are a number around the country, but the economies of it seem to depend upon public funding at the moment. I think that is an ongoing discussion with DESNZ, but I agree with you; it seems like a sensible use of resource.

Q116 **Lord Rooker:** I have a brief question on the Clean Air Strategy about what you see as the priority areas and whether you are going to have a revised strategy or a completely new one. I want to touch on an issue that Glenys Stacey raised with us about this when she gave evidence: she thought the governance needed a stronger connection with local authorities, because it turned out that the local authorities were doing the

work there. Is that going to be dealt with when you do the new strategy?

Emma Hardy: We are writing a new strategy, due in mid-2028, that will be co-designed with stakeholders all working together on it. More imminently, the EIP, which I have mentioned previously, will look at how we are going to reduce emissions and concentrates.

My immediate priority is to implement measures that reduce pollution, so I met the Health Minister and Sir Chris Whitty. The figures for the health impact of air pollution are stark, especially regarding its impact in more deprived areas and on some of our poorer communities. Toxic air pollution is something that I am quite serious about. I have had various meetings with stakeholders and listened to them about what we can do in terms of air quality in general. I will give you a bit of a forward look at some of the things that we have coming up. We are going to be consulting on the measures around domestic combustion and air quality, because we know that domestic combustion is causing huge problems. We are looking at consulting on measures to reform environmental permitting processes for controlling emissions from industry. We are working with DESNZ on, as has been mentioned before, how digestate from anaerobic digestion can be handled so we do not have unintended consequences for air pollution.

The other message that was clearly given to me is about what we are doing on public communication. When we think about things like domestic combustion, are we thinking about them in terms of public health? What is the best and most effective way that we have to raise awareness of poor air quality and practical ways that we can reduce the impact of air pollution on ourselves? That is something on which I want to work closely with the Department of Health.

On local authorities, JAQU, the Joint Air Quality Unit—a joint unit that has Defra and Department for Transport officials on it—works with local authorities. It helps them to come up with a plan for how they are going to reduce their NO₂ emissions. It has been really successful in Birmingham and helped to reduce air pollution, so that has been quite a positive. Once a local authority can demonstrate that it is compliant then it can move out of that formal programme. That has been quite a successful piece of work.

The Government have made announcements about cleaner buses and electric buses, all of which has a positive impact on air pollution, but, in terms of what we want to do, I want to get on with doing some stuff. These consultations are an important first step in doing that, as is working closely with the Department of Health. We are getting the message out there that air pollution has a serious impact on your health, because I am not sure that that message is fully heard when we talk about air pollution. Are we talking about it as an impact on people's health?

Lord Rooker: In that case, have you thought of aligning with the World Health Organization targets?

Emma Hardy: We have had a look, and certainly they will help to inform our EIP targets, but of course the WHO will set indiscriminate targets regardless of an individual country's circumstances and ability to meet those targets. We are also interested in what the EU is doing around air quality targets. We want to have something that is ambitious but achievable for what we intend to set for air pollution. You will see some of that in the EIP but, as I say, the air quality strategy is due in mid-2028.

The Chair: I would like colleagues who have supplementaries to hold fire for now, because we really are up against the clock and Lord Trees has been waiting very patiently.

Q117 **Lord Trees:** Thank you for all the time you have given us. The fascinating problem about coming last is that many of the questions have been asked and indeed answered, and I will bear that in mind. I have two quite short questions that can receive quite short answers. We all agree that nitrogen problems are very complex and need holistic approaches. Defra is working on a number of initiatives: the Land Use Framework, the Farming Roadmap and the Food Strategy. I think I know your answer to this, but can you assure us that nitrogen management is being considered within the development of those schemes?

Daniel Zeichner: That is a fantastic question. Now I can emulate my colleague's enthusiasm because it gets me on to the food strategy. The simple answer to your question is yes. Part of the land use consultation was asking people what they felt needed to be done to meet the Environment Act target to reduce nitrogen, phosphorus and sediment pollution from agricultural land by 40% from 2038, so it is essentially embedded in part of the consultation.

My passion is the food strategy because I think this can be transformational. We do not have time to discuss it in detail but many will be familiar with the work that Henry Dimbleby and others did a few years ago, and part of his analysis was that we have a fantastic food system but it has environmental and health consequences that we need to challenge. It will absolutely be part of our thinking as we take that forward.

Lord Trees: That is reassuring. The second question may be more difficult for you to answer: what is the timescale, particularly for the Land Use Framework? We are currently seeing changes in land use at a scale and a speed that are probably unprecedented, and many of those changes are irrevocable. That has real implications for food security, which, as you have highlighted, is one of your main responsibilities. What are you doing to bring forward the production of a coherent Land Use Framework? Do you agree that it is a matter of considerable urgency?

Daniel Zeichner: We absolutely do. The previous Government promised it a number of times but it did not happen before the election, for a range of reasons. I was delighted that we managed to get the consultation out. It closed on 25 April and we are currently looking at some really good and thoughtful responses. Many people are engaged in this discussion,

and we plan to produce the next stage by the end of the year. I cannot tell you how significant I think this is. It is so important, because the current system does not allow us to deal properly with the various trade-offs that we have discussed this morning. Some people are worried that somehow it will tell people what to do. It will not. It will give people information to allow them to make informed decisions, and I think that is really important.

Earl Russell: Regarding Lord Rooker's question, you were talking about domestic emissions. When you were talking about new regulations, was that around wood burning?

Emma Hardy: I keep saying "imminently". We are doing a consultation on domestic combustion which will be coming out imminently. We are working on designing that consultation. As soon as it is out, I will ensure that it is shared with the committee.

Earl Russell: What is next for the water restitution fund and the idea that the polluter pays? I very much welcome the payment and the first tranche under that, but is that still a work in progress? Is there more clarity now on that future?

Emma Hardy: Everyone who was successful in applying for the water restoration fund has been written to checking that they are happy to accept the money. I had hoped that it would be by now, but as soon as we have confirmation that everybody is happy to accept it, I want to do an announcement saying that this is exactly where the money is spent, so that people can see where it has gone.

The question of what to do with fine money in the future is one that I am considering. What is the best and effective way of using money from fines to improve our environment? There have been various contributions, with some people looking at catchments and various ideas about where that money could go. The water restoration fund is in existence, has been paid out and runs for another two years. The principle of the polluter paying is one that I agree with.

Q118 **Baroness Whitaker:** Who monitors air quality in domestic kitchens and who does it in organisations' kitchens—schools, hospitals and so on? Is it the environmental health officers? Are there enough of them?

Dr Bill Parish: I do not think that there is a particular owner for monitoring indoor air quality. We are talking to DHSC colleagues to identify research funding for improving our understanding of exposure in indoor places. For example, we want to understand more about exposure to PM2.5 and other pollutants inside the home as a result of domestic solid fuel burning.

The Health and Safety Executive looks after workplace air quality—for example, flour dust in bakeries, kitchens and other commercial situations. It has standards that will be enforced by HSE in a risk-based way. For schools, there is no standing mechanism for monitoring air pollution. We are working with DHSC to see what we need to do to increase our

understanding of exposure in those environments and scenarios so that better information can be provided about ventilation.

Baroness Whitaker: Does that mean that you have no people monitoring it?

Dr Bill Parish: There are no people actively entering premises and measuring what is in the air.

Lord Duncan of Springbank: Minister Hardy, you mentioned that air pollution is more significant in deprived areas. What do you mean by that? I could not work out why it would be more significant in deprived areas.

Emma Hardy: I will make sure I make my point really precisely. It has a major impact on public health, especially on disadvantaged groups. That is what I should have said, so I should clarify that.

Lord Duncan of Springbank: It is not geographical.

Emma Hardy: It has a greater impact on disadvantaged groups in deprived areas.

Dr Bill Parish: To add some clarification, poorer neighbourhoods are more likely to be closer to busy roads and industrial areas, so their exposure to elevated levels of pollution is likely to be higher. That is not always the case, but those communities are likely to be closer to bigger sources of pollution. Also, because of a wider range of health inequalities and factors affecting health, that exposure to air pollution is likely to have a greater impact on their health. It is not just exposure but how air pollution fits in with the wider suite of factors influencing health and health inequalities.

Lord Duncan of Springbank: Do you have the evidence on the geographical element? I accept that poorer areas can be near major roads, but the universality of that statement seems to be quite bold. Do you have evidence to support that?

Dr Bill Parish: Yes. The other thing we are doing is working with the UK Health Security Agency in developing new vulnerability maps which take into account lots of health vulnerability factors and overlay them with air pollution concentration maps.

Lord Duncan of Springbank: Could you use that as a means for funding to address that issue? If you take the vulnerability maps and look at how you fund to address that, is there a correlation between the two?

The Chair: These are quite technical issues, and we are over time.

Lord Duncan of Springbank: Perhaps you could write to me.

The Chair: That would be good. Lord Duncan, you can feed into the clerks with any further questions that you have.

Lord Rooker: We need Professor Marmot, do we not?

The Chair: We are a few minutes over time. Thank you very much for your patience and for your diligence in answering our questions. The Circular Economy Taskforce is a crucial piece of work if we are to manage nitrogen in the environment effectively. It will doubtless inform the Land Use Framework, the Farming Roadmap and Food Strategy comprehensively. I would still welcome, in writing, some more information on the make-up of the Taskforce, its areas of responsibility, any indication of timeframe and what plans there are to deliver the conclusions of that important piece of work. With that, I formally end the public session of this meeting.