



Environment, Food and Rural Affairs Committee

Oral evidence: Flooding, HC 170

Tuesday 14 July 2020

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[Watch the meeting](#)

Members present: Neil Parish (Chair); Ian Byrne; Geraint Davies; Rosie Duffield; Barry Gardiner; Dr Neil Hudson; Robbie Moore; Mrs Sheryll Murray; Julian Sturdy.

Questions 1 - 54

Witnesses

I: Emma Howard Boyd, Chair, Environment Agency; Sir James Bevan, Chief Executive, Environment Agency; John Curtin, Executive Director, Flood and Coastal Risk Management, Environment Agency.

Written evidence from witnesses:

– [Environment Agency](#)



Examination of witnesses

Witnesses: Emma Howard Boyd, Sir James Bevan, and John Curtin.

Q1 **Chair:** I very much welcome everyone to our floods inquiry. It is good to get back to looking into floods again. We have done various floods inquiries, including a coastal flooding one last year that we had to stop due to the general election, so it is good to pick up where we left off. We are delighted to have all the senior people of the Environment Agency with us this afternoon. Of course, there is a new report out from the Environment Agency, which we are going to discuss. Emma, would you like to introduce yourself first, and then Sir James and John?

Emma Howard Boyd: I am Emma Howard Boyd. I am chair of the Environment Agency.

Sir James Bevan: It is good to be back. My name is James Bevan and I am the chief executive of the Environment Agency.

John Curtin: Good afternoon, all. I am John Curtin, the exec director of flood and coastal risk management at the Environment Agency.

Q2 **Chair:** Welcome to you all. I have explained to our Select Committee members here that today we are going to allow you up to 10 minutes between you to present this report that has just been published today. I do not know who wants to start off. Please choose who is going to start, and you have a maximum of 10 minutes. If you can do it in less, please do.

Emma Howard Boyd: Hopefully we will do it in much less than 10 minutes. Thank you for welcoming us here today. We very much welcome this inquiry and are very grateful for the opportunity to answer your questions today. The timing could not be better, for today the Government have set out their new policy direction on flooding. The Secretary of State has laid the Environment Agency's new national flood and coastal erosion risk management strategy before Parliament and I have a copy of it here.

I wanted to start by saying a few words about this hot-off-the-press news and why this inquiry is so important at this time. The coronavirus has had a profound effect on the way that everyone operates, but it has not stopped rain from falling or the sea from rising. This year, we had the wettest February on record, with more than twice the average amount of rainfall. That came on top of a record-breaking wet autumn in Yorkshire. Despite the vast quantities of water and higher river levels in many places than the summer floods of 2007, when 55,000 properties flooded, we estimate that our flood scheme has protected over 128,000 properties this winter. Less than 1% of properties at risk in England flooded.



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Of course, many places did flood and that is a horrible experience for those affected. That is why, during the lockdown, 90% of our flood risk management capital projects continued. We did not stop maintaining or operating any of our strategically important assets across the country and we continued our maintenance works where resources and safety were assured, prioritising assets that posed the most significant risk to communities. For every pound spent improving protection from flooding and coastal erosion, we avoid around £5 of property damages.

The Government's record £5.2 billion investment for the period 2021 to 2027, announced in the March Budget, and the immediate £170 million cash injection to accelerate flood scheme construction in England announced today are good news. These long-term commitments will better protect 336,000 properties, including homes, businesses and hospitals. To deliver this, and more, the Environment Agency has today launched its new flood strategy, which sets out how we, alongside risk management authorities, partners and communities, will build up the resilience of millions more homes and businesses. Our vision is a nation ready for and resilient to flooding and coastal change, today, tomorrow and to the year 2100.

The key word is "resilient". Until now, we have focused on trying to protect communities. That is still vital, but, as a nation, we need to stop chasing the last flood event and should instead be making sure we are ready for the next one and all the ones after that. We also need to manage the flow of water to both reduce flood risk and manage drought. By 2050, summer temperatures are set to be up to 7.4 degrees centigrade hotter. We anticipate 59% more rainfall. Once-a-century sea level events are expected to be annual events.

Resilience means warning, informing, and being prepared to get back to normal quickly after a flood, as well as creating traditional and natural flood protection schemes. Despite the risks posed by the climate emergency, communities do not want to be cut off from the river or the sea by a concrete wall. Access to green and blue space is essential for people's health and wellbeing, as well as their sense of place. Our strategy will create better and more resilient places for people and wildlife. As the Prime Minister says, it will help the country to build back better, greener and faster.

I would also like to commend to this Committee the fantastic Environmental Agency staff, who work day in, day out for the people and places we are here to serve, and all those who work in partnership alongside us up and down the country: local flood authorities, internal drainage boards, the emergency services, water companies, farmers, landowners, community volunteers, flood action groups and many more. Thank you very much.

Q3 Chair: Thank you very much for that, Emma. It starts off our evidence session this afternoon very well. You have talked a little bit about it, but



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the first question is that, naturally, you, as the Environment Agency, play a very important role in the managing of flooding. I would echo your words to your staff. They do an excellent job. Of course, you also need to work with the lead flood authority, the district councils, the internal drainage board, the water and sewage companies and the highways authority. Between you, can you explain how you do that?

I think it is getting better, but there is no doubt that, when we did our previous inquiry a few years ago, people did not always co-ordinate together. Can you explain a little bit about how all the co-ordination works with all those different bodies to make sure, for instance, if the fire brigade has pumps, it can come in in time? Can internal drainage boards be doing more work that perhaps the Environment Agency does not need to do on the ground? How does all this work?

Sir James Bevan: First, what does the Environment Agency do? There are four things. We are the strategic flood authority for the country, so we set the direction for the whole country in terms of how we manage flood risk, which is what today's strategy is about. Secondly, we are an infrastructure provider, so we build and maintain flood defences. Thirdly, we are an emergency responder. When floods happen or threaten, we warn and inform, and we put our people on the ground to protect communities. Fourthly, we are a statutory adviser. In the planning role, which I am sure we will get on to, we advise planning authorities about planning decisions that could be affected by flood risk.

In terms of the key players we operate with, obviously Defra and the Government have overall responsibility for the policy. They have laid out the Government's policy in the policy statement that was issued today by George Eustice. We then have the lead local flood authorities, usually the upper-tier local authorities, which have a responsibility for local flood risk management and things like surface water management. We work very closely with them. We have internal drainage boards, which you also mentioned. They supervise drainage, do various flood risk works in partnership with us and regulate the smaller water courses. Then we have other actors like the highway authorities and the water and sewage companies, which also manage assets or have responsibility for various kinds of flooding within their remit.

How does it work? It works pretty well. The collaboration on the ground is very good. All those people and more helped to shape the new strategy, so they own it as much as the Environment Agency. I think that, if you asked them, they would say they own the strategy, too. Can it be better? Yes, it can always be better. We are constantly trying to find ways in which we can work even more closely together.

Q4 **Chair:** I understand how you work together, but, for instance, should the fire brigade be part of the statutory authorities dealing with flooding? They can provide pumps that you cannot provide. I know when we did our previous inquiry, back in 2016, there were times when the fire brigade felt they were not being used to best effect and were perhaps not



being managed in the right way. What can we do more to bring people in? When you get a flood, you need literally everybody to the pumps.

Sir James Bevan: Sure, you are right. There is a process for that, which works quite well. The local resilience forums—there are 38 of them in England—have responsibility for planning for and managing civil contingencies like flooding. In wartime, as it were, they are usually chaired by the local police chief. They have all the members of the emergency services, including the fire and rescue services, around the table. The Environment Agency will be there. The local authorities will be there. Other key players, like the NHS, will normally be there.

In my experience, and it is five years now that I have seen these LRFs operating, the collaboration is pretty good. On your point about pumps, you will literally have Environment Agency and fire and rescue people sitting round a table, saying, “What kind of pumps do you have? What are we going to use where?” and swapping over to collaborate effectively on the ground. That is pretty good.

Q5 **Chair:** The more closely we can work together as bodies, the better. On the water companies and how much they can hold water back in time of flood, are we incorporating the water companies enough in flood management?

Emma Howard Boyd: This is another area where a lot of work has taken place between us, the water companies and Ofwat in the run-up to and in preparation for PR19, the five-year settlement. We have set up a group called RAPID—it was set up by Ofwat, but involving all the regulators—to look at the need for infrastructure throughout this period. That is not just for protecting communities from flooding, but also to look at this incredibly important question of too little water, so water resource management as well. This is one area where we, as the Environment Agency, with our partners, our departmental colleagues and others in the Defra regulatory framework, put a great deal of emphasis into collaborative working, to make sure the signals we are collectively sending are absolutely right to deal with the increasing climate change we are facing.

That is one thing that comes across, hopefully very loudly and clearly, in the strategy we have published today. I appreciate it was literally hours ago, so you will not have had time to go through it in detail. Although it has our name at the front of it, we have worked very closely over the last couple of years with over 90 different organisations. I would like to think this is very much a joint strategy. Although it sets out our strategy out to 2100, throughout it we have also put down very clear markers for what we need to deliver, with others, over the next shorter periods of time.

Sir James Bevan: There are also some very good examples of practical collaboration between us and the water companies to manage flood risk. Northumbrian Water is an example. We work with them. We have an arrangement with them whereby they will draw down the level of water in



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Kielder Water, which is obviously their biggest asset, in order to accommodate more water in wintertime, so that water will stay in the reservoir, rather than go down into the rivers and into the towns. We are talking to other water companies about whether we can replicate that arrangement elsewhere.

Q6 Chair: When we are talking about catchment management, they are holding water back in the winter on Exmoor and releasing it in the summer. You are helping with flood in the winter and then have a water supply in the summer without building another reservoir. Naturally, it is not a direct job of the Environment Agency, but, when we are dealing with flood management areas and catchment areas, we could perhaps do more of that. I suppose it is not your job to advise the water companies to do it. I want to know who is actually driving that.

Sir James Bevan: We work very closely with the water companies. We work with them to manage both drought and flood risk, as the chair and I have just been saying. We also work with a whole bunch of other colleagues across individual catchments to manage those catchments in ways that manage flood risk, drought risk and the environmental issues you find in catchments. The Environment Agency has 65 of what we call catchment co-ordinators for every one of the major catchments in the country. Those people are in charge of pulling together coalitions of stakeholders from those catchments, including the water companies, to make sure we manage the catchment sustainably for the benefit of everybody.

Emma Howard Boyd: Another role they play is in incident management. All those individual partners that I listed at the end of my opening comments play a huge role when we are actually in incident. Water company colleagues are out on the ground with our teams, providing a vital service. That is a theme we want to stress throughout our time with you this afternoon. As we are at the start of a decade working on our climate delivery, it is in everybody's interest to collaborate at pace around these issues. We are seeing that very strongly through the partners we are working with.

Q7 Chair: There is one final question from me on this to John, and that is on internal drainage boards. Are they being used enough in the maintenance of rivers, even where they exist in coastal areas and perhaps even sometimes in maintaining flood defences? Are there ways that we can actually put more of the funding down to internal drainage boards? They are very often closely connected to those who manage and farm the land.

John Curtin: I think we had this conversation last time we had one of the Committee hearings.

Chair: Yes, it is one of my old chestnuts.

John Curtin: No, it is fine. Things have moved on. One of the things we looked at is piloting de-maining. It is a bit techy, but the Environment Agency is responsible for what are called main river and ordinary



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watercourses, including local authorities and internal drainage boards. Since we last met, we have de-mained to IDBs or local authorities about 63 kilometres of river. That is now their responsibility. The key is that they have funding to do it, though. There is an area of modernising the legislation around IDBs so that we can more easily expand their areas. I know Government are aware of this. We have moved 63 kilometres of river that we were responsible for to them. That is quite an arduous job. That is a modernisation that can happen in that area.

The other bit that works really well is public sector agreements. If you have a local drainage board or a local authority, and, vice versa, we, the Environment Agency, have a depot near some of their work, we can have one of these public sector agreements where we agree to do each other's work. That maximises the use of what we do.

As James and Emma have said, in an incident they are right alongside us. Even this winter, when I went to Snaith, you had an IDB pump, an EA pump and a fire and rescue pump side by side, all co-ordinated together. We can do more, but that is probably linked to making it easier to de-main and looking at the way that local authorities can draw more funding locally.

- Q8 **Chair:** You are right about the de-main idea. Once it is a main river, it is your responsibility. If you de-main it, of course the IDBs can kick in. Very often, they can spend money locally and perhaps do things in a slightly more cost-effective way as well. Every time I ask the IDBs, they always say they are not being given enough work and you tell me quite clearly that you are giving it all away. I think it is somewhere in the middle, really. I would urge you to carry on, because I think on the ground the IDBs could do more work than they do already. You are going in the right direction. I would like you to go a bit faster. That is the argument.

John Curtin: Yes.

Emma Howard Boyd: There is regular engagement with the IDBs, particularly through the ADA. I am meeting regularly with their chair. The execs are meeting too. We are all keen to make it as efficient and effective as we can within the constraints that exist at a local level. Not every IDB wants to take on this opportunity either.

Chair: No, you are right. The IDBs have slightly different sizes and capabilities. I understand that. That is enough from me for the time being.

- Q9 **Mrs Murray:** Can I turn to the new flood risk management strategy? What were the main messages that you received from your consultation?

Emma Howard Boyd: I have already expressed some of this, particularly the amount of effort that has gone in throughout the entire process. We launched the consultation last May and have had a lot of engagement with relevant partners.



Q10 **Mrs Murray:** What were the messages?

Emma Howard Boyd: The messages were partly addressed by what your Chair talked about earlier: this clear need to set out responsibilities. There was a really strong focus on resilience and that change in emphasis from protecting to building up resilience at a local level and using every single tool in the box to make sure that happens. That can be from the warning and informing right through to some of the schemes that we build.

Q11 **Mrs Murray:** Where did these messages come from? Were they from everybody, or did you have different messages from different people you consulted with?

Emma Howard Boyd: There were a range of views. John, you are more involved in the detail of who said what to whom.

Mrs Murray: That would be useful. Thank you very much, John.

John Curtin: There was generally a consensus across a wide variety of people. We actually developed the strategy with about 19 different organisations anyway for the draft. There was a general consensus that we need to move away from this thought that it is always going to be protection—adding more and more to higher walls—to other things. Those include—you have heard a lot about this today if you have seen the announcement—land use changes becoming as important as some of the engineering. There was real consensus around that.

One area people wanted to strengthen was the role of farmland. We worked with the National Farmers' Union and ADA on this. That of course will be linked to the new payments for farmers, which we can talk about later. People wanted us to strengthen that and the voice of community. We have worked on this strategy with the National Flood Forum, which is a great organisation that represents those who have been flooded in a flooded community group.

Actually, there was a remarkable amount of consensus, not least because of the pace of climate change that people are seeing and the threats too. If you think about the strategy, one of the main things it is doing is not only lifting our horizon geographically—the scale of a catchment or coastal zone—but also our timeframe. Rather than it being a five-year horizon for investment, we are starting to look at what our plans will be 50 years hence. We are starting to realise that the infrastructure we build in this country now—anywhere from road, rail to brand-new buildings—will exist in a completely different climate. We should be designing that infrastructure in that new climate rather than retrofitting flood schemes on to previous planning decisions.

Q12 **Mrs Murray:** What sort of period in time do you look at? Is it a one-in-100-year or one-in-500-year incident? Have you changed your thoughts on this as we have seen more flooding?



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John Curtin: We are trying to move away from that language, and I am sure the Chair will mention this as well. The return period language tends to confuse people. If they have had what someone says is a one-in-100-year flood, they kind of think they are then immune for another 99 years. That is not the case.

We have talked to people about what their actual risk is. We ran a project with communities about how to get across the language of flood risk, whether you use probabilities, return periods or even betting odds. Rather interestingly, the community said, "Anything with probability just confuses in a way. Just tell me: am I at risk? If so, what are you going to do and what do I need to do?" That is the basis of the strategy now, about their role alongside our role. We will probably talk a little more about what resilience means, coming forward alongside protection. It is their role alongside ours.

I can give you a great example on this, if you want, with the recent flooding in the Calder Valley. There were loads of great schemes being developed in the Calder Valley. It has been hit hard by quite a few floods. There is a hairdresser's in Mytholmroyd called Headquarters—they usually have these sorts of names, do they not?—that is run by a lady called Sue. Her hairdresser's is right next to the river in Mytholmroyd. She was badly flooded in 2016, and it took nine months to get her business back on its feet.

This is absolutely essential to what we are saying today. When she was flooded in 2016, instead of just putting it back as it was, she invested money to tank the walls, pave the floor and lift the electrics. Her kit can be bagged up really quickly when she gets one of our flood warnings. She was unfortunately flooded during Storm Dennis again this year but, instead of nine months, she was up and running in a week.

Q13 **Mrs Murray:** One of my colleagues is going to ask you more about that flood situation, so maybe we could move on to the other part of what I would like to know. How have you taken these messages on board? You have mentioned that you are moving away from the probability messaging. Are there any other ways in which you have taken these messages on board?

John Curtin: Yes. The main one I have said is probably about the time horizon we start to work with. Some of the language can get in the way here, but, if I can unpack it, there are adapted pathways. In essence, rather than building a scheme and then people thinking they are now immune for 20 or 40 years, it is making sure folk understand that we are going to have a long-term plan. We keep returning to that with them to make sure of our predictions for climate change. Has it accelerated or not quite materialised? Have our interventions been right?

Communities know what those checkpoints are, know those decision points and know the long-term plan. They know that we are in this together for the long term, rather than perhaps seeing the Environment



Agency, the IDBs or the local authority turn up, do a thing and then walk off. We trialled this approach on the Thames estuary, because there is a really big decision on the horizon on the Thames estuary. At some point this century we will have to build a new Thames Barrier. You want to make sure you know the most effective time to make that investment. It is transposing that approach; this one looks at what the long-term plan is and how it adjusts between tree planting and engineering. That is not least because a lot of the natural interventions we are talking about are not going to materialise overnight, but people know that we have that longer-term vision and plan. That is probably one of the biggest ones that we have shifted.

Emma Howard Boyd: I would like to add another point. It links to the funding announced back in March and our previous five or six-year funding settlement. That is something that we are really pleased we have taken along with the launch of this new strategy. It is this long-term settlement for investment in our work. That leads to other efficiencies, being able to plan across different financial years, and has really helped with the understanding of the concept of “build back better”. That is something we have been talking about in the flood community for a number of years, but it has really gained prominence over recent weeks and months. It is incredibly important in our work, whether it is the big schemes or, indeed, the things we can do on houses and property-level resilience.

Q14 **Mrs Murray:** That is very reassuring. Sir James, is there anything you want to add on either the messages you received from your consultation or how you have taken them on board with your new strategy?

Sir James Bevan: There are maybe two things. One other message that we heard very clearly, which is now embedded in the strategy, is that flood defence also has to be about economic growth, jobs and livelihoods. A big chunk of the strategy is about how we ensure that all infrastructure investment is resilient to do with flooding. If it is not, that will very much damage growth. It is also about how we can ensure future spending on flood coastal defence directly contributes to creating jobs and sustainable growth in local places. You see an example of that today in the £170 million additional that the Government have announced—targeted at over 20 places and deliberately designed for shovel-ready projects to kickstart growth after coronavirus. Growth is one thing I would add.

Finally, we have heard a lot of people say words to the effect that—and John Curtin captured this—our thinking needs to change more quickly than the climate. This is an attempt to really get ahead of the curve of the climate emergency before it gets ahead of us.

Q15 **Mrs Murray:** You mentioned shovel-ready projects and the investment going into some that are shovel ready. How do you make sure other projects become shovel ready? Is there a funding stream to enable these to be built on and designed so they become the future shovel-ready projects?



John Curtin: When we had the settlement for the next six-year programme starting in March next year—the £5.2 billion you will have seen—the Treasury also gave us £100 million for this year we are currently in, where we are developing a pipeline of projects that will be ready to go, so it is not a cold start in April 2021. It is an overlapping programme anyway. We are currently in year 5 of the current six-year programme, and we have already protected about 244,000 homes so far. We have extra money this year to get us ready for next year. Even with the challenges of coronavirus, we can do a lot of that work with partners, local authorities and communities. We have done drop-in centres with communities remotely. Yes, there is a pipeline of projects, all fully funded by Government.

Chair: That leads neatly into Barry’s question on resilience.

Q16 **Barry Gardiner:** Good afternoon to our witnesses. I would like to explore the concept of resilience with you. Let me start with the Environment Agency itself. You have talked about the £5.2 billion in this settlement, which is very welcome. Perhaps you can tell us how many staff the agency shed in the last decade, how this £5.2 billion will be used to address flooding need over the next six years, and what it will mean for your capacity as an agency and your staff. Will you be able to increase your staff in accordance with that doubling of the funds coming in?

Sir James Bevan: On the first part, it is slightly complicated to give you a number for the overall staffing of the agency over the last few years because we have taken bits away from it. We separated out a part of the agency and that became Natural Resources Wales. We separated out about 1,000 of our corporate services staff and those are now part of Defra group corporate services, delivering services to us.

Actually, if you look back at the last five to 10 years, the effective genuine comparative workforce size of the Environment Agency has remained pretty much constant at just about 10,000 staff overall, of whom 3,700 or so will be directly responsible for flood defence work. Everybody is responsible for flood defence in an incident. We have over 6,000 of our staff who are trained and ready to deploy when we have an incident. The overall workforce has remained roughly constant.

Maybe John would like to talk about how we are preparing to adjust how we operate in order to spend that very welcome £5.2 billion.

John Curtin: One thing to point out about preparing for the £5.2 billion is that a vast amount of our capital programme is through the private sector, through framework agreements we have. We are using the supply chain. We had a new arrangement that we created with the supply chain around regional hubs, so that most of our folk are local. Most of the Environment Agency staff are out in the areas. I am sure you will know them well from your contacts.



These supply arrangements with the private sector are the ones that are going to be mainly gearing up for the programme. The private sector supply chain can ebb and flow more than our staff. They are losing quite a lot of private sector construction business at the moment, so they are eagerly looking to help us. We of course have to lead these projects. We have to nurture the partnerships and talk to the communities. Trying to get one view of communities can be quite challenging. There will be a modest investment in Environment Agency staff, but, at the moment, a lot of that money is for the supply chain and the private sector.

Q17 Barry Gardiner: Indeed, but in order to plan, and to make sure you are doing exactly what Sheryll was talking about—getting those shovel-ready projects shovel ready—you are going to need people centrally. Give us a feel for what that would mean for your complement of staff at the EA.

John Curtin: We are probably looking at about 350 extra people to do this work, but many of those we might buy in from the supply chain. I should also stress that this is not just an EA thing. Lead local flood authorities and internal drainage boards are key people for supplying some of these projects. We also have a role as part of our leadership of flood to try to nurture skills. We have our own foundation programme for young graduates.

Q18 Barry Gardiner: We are limited on time and I know the Chair will want me to press on, but thank you for that. That was helpful. I note that the strategy has three core ambitions. In the first, you talk about climate-resilient places. You have talked about that as being the “ability for a community in a place to cope with, and recover from, all sources of flooding or coastal change”. That is a direct quote. If we take a specific example such as the Thames Valley flooding in 2014, is the resilience simply about the number of lock and weir keepers available to regulate the waterflow during the flooding emergency, or does it capture such things as the poor digital access that made communication between those officers at the time so very difficult that problems were encountered?

John Curtin: You are right. The whole concept of this resilience rather than just protection is to look at all facets in place. Traditionally, engineering has been the key way forward for managing flood risk. Let us be really clear here: engineering will be absolutely fundamental for the future flood risk as well. There tended to be a hierarchy: “I will have an engineered solution for a community. If I cannot do that, maybe we will put property-level resilience in. If I cannot do that, we might end up with some natural flood management”.

This concept is about all those things coming together in place like a mosaic—all the pieces coming together to build up resilience. That will include the staff available to do the job and communicating. We have done some brilliant work on digital with communities going forward. This whole concept is that, yes, engineering will be at the heart of it. In the Thames Valley itself, we have a major project being worked on at the



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moment, but it will also look at storage upstream, which could have benefits for water quality and low flows as well.

Sir James Bevan: I will just give you one statistic. You are absolutely right. It is not just the people; it is the infrastructure you have to protect. Although only one-sixth of homes in England are at risk from flooding, and that is a pretty big number: 5.2 million. Over two-thirds of homes in England are served by infrastructure that is dependent on areas that are at risk of flooding.

Emma Howard Boyd: For every person or household that is flooded, 16 other individuals are affected by the infrastructure services that they use. For all the work that we see around infrastructure build, we need to make sure it is ready for flooding and heatwaves, etc.

Q19 **Barry Gardiner:** I absolutely agree with you. In the draft and, I think, although I have only had a chance to skim it this morning, in the actual strategy, you have quite rightly focused on standards of resilience. The strategy talked of working with other people, like the National Infrastructure Commission and other partners, to “explore and develop the concept of standards for flood and coastal resilience”. The Government have rather blown that out of the water, if you will excuse the pun, with today’s letter from the Secretary of State to Sir John Armitt at the National Infrastructure Commission. There is much in the letter that I am sure we can all agree upon: the increased funding, strategic planning and so forth. I do not want to waste time rehearsing those here.

I want to ask you what you think is behind the Government’s determination not to set standards of resilience. Do they somehow think that resilience is an alternative to protecting homes and businesses? I am clear from your draft strategy, and I think also from your strategy, that you have made it clear that protection is very much at the heart of resilience.

Sir James Bevan: Obviously, we are not here to comment for the Government. I think you will get a chance very soon to ask that question to Ministers. I will tell you what the Environment Agency thinks about standards, which is that it is a subject that we should discuss. As you say, the National Infrastructure Commission has recommended national standards of resilience. We do not think it would be sensible to have a common standard for the level of protection that each individual flood defence scheme provides. That would be unwieldy.

Q20 **Barry Gardiner:** I do not think the NIC actually suggested that, did it?

Sir James Bevan: It did not. You are absolutely right. It suggested a standard for a place, for a location. We can see some good arguments for that. How you define it is a big issue. Who defines it and how is it met? We think that the concept of a standard, not just a standard of flood protection for a place, but a standard of resilience for a place not just to flood but to be able to come back well afterwards, is an important and interesting subject that is worth discussing.



Q21 Barry Gardiner: Emma Howard Boyd, I wonder if you can sort out a conundrum for me over the figures in the Secretary of State's foreword to the policy statement on flood and coastal erosion and risk management. During this six-year period, ending in December this year, £2.6 billion has managed to save 300,000 properties. I think those are the figures also in your strategy. He says that double that, £5.2 billion, will now save only 336,000 properties in the next six-year period. That seems strange to me.

I wonder whether it is anything to do with those standards of resilience that the NIC, the National Infrastructure Commission, was recommending. It said a one-in-200 risk of severe flooding for all communities should be the norm. It also recommended a higher standard of one-in-1,000 risk for the largest cities with a population greater than 500,000. If double the money is saving only 12% more properties, that suggests that the Government are determined to focus their resources not on the most populous areas, as the NIC recommends, but on more sparsely populated areas. Is that a correct interpretation? If so, do the Government risk being accused of gerrymandering the resources not towards the greatest need but towards their electoral vote in rural areas?

Chair: Perish the thought.

Emma Howard Boyd: Thank you for that question. Within that lies a huge amount of detail. What is absolutely key to understand in the way that John and his team have built up the projects that will be part of the next strategy is the complexity of what we are trying to achieve. We have also had an early indication of this where what is made more resilient and protected becomes broader than a focus on housing. It is this stretch to bring in more infrastructure and farmland. While you are not getting an increased number of houses, we are aiming to make sure that you have resilient communities and that businesses are part of that, as opposed to the main focus being on housing.

Q22 Barry Gardiner: Yes, of course, but they are all people. As my colleague Sheryll Murray previously talked to you about, it is very important for each of those people. For them, this is a critical moment for their life, their business and their livelihood. If you look at major areas of population that have been susceptible to flooding—I am thinking obviously of Hull and the Humber region and the city of York—we are not just talking about homes. Of course we are not. We are talking about major businesses. We are talking about major communities. We are talking about major infrastructure suppliers. The economic cost of flooding in those areas would be ginormous.

It is very strange to me that an extra £2.6 billion only gets you an extra 12% of protection in terms of the properties that are protected. That is why I want to be clear with you. Is that correct? Is the 12% figure that I have quoted, or I have tried to work out from the data you have given us, actually accurate? What does it mean in terms of economics? What is the contribution to the economy? If you are telling me, "It may be only



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12% of properties, but it is 50% more protection for the economy”, I might be able to understand it. That is why I am posing the question specifically to you.

Chair: Sorry to interrupt, but this is quite a complicated question, which will probably be better done in a written answer. Sir James, do you want to say something? Then we will carry on.

Sir James Bevan: Could we invite John Curtin to answer this one?

John Curtin: We can provide a written answer, but there is a simple truth on all this. You were right on the analysis, but there is a lot of low-hanging fruit in the current six-year programme we are in—the £2.6 billion for 300,000. This was the first time Government, or any Government, had done a long-term capital settlement. We are now at the end of the assets for a lot of coastal assets that were built after the major surge in 1953 where, unfortunately, 307 people lost their lives. It just happened to come together that there was a massive refurbishment of old coastal assets that were protecting tens of thousands of properties.

In the current programme going forward, yes, there are fewer properties, but Emma is right. With the infrastructure that is being protected—the economic growth—there is still a massively healthy cost-benefit for that whole programme of over five to one, which you can compare with a lot of other investment in infrastructure. In essence, we did the low-hanging fruit in the current programme we are in.

Q23 **Barry Gardiner:** Thank you, John. That is really helpful. I look forward to the letter setting out exactly what you expect the economic benefits and the figures to be. Finally, communities at risk of flooding need certainty about the protections they have and the risks they face. You will know of the campaign run by the Keswick Flood Action Group for legislation to require water companies to operate their reservoirs to provide storm capacity to reduce flood risk for the communities living downstream of their assets. There was a cross-party Bill to give power to the EA to require water companies to manage reservoirs in order to mitigate that flood risk. Would you welcome such powers?

Chair: Can we have a short answer? The questions are getting a bit long, dare I say, Barry. We are getting short of time now.

John Curtin: I have met Lynne Jones from the Keswick group many times. You are right on the whole peace-of-mind element. Some of the water companies are doing brilliant work on voluntary adjustments to their reservoir levels. They want some certainty. Every time it rains in Keswick, they are worried what the water company is doing. Whether that certainty comes in long-term agreements, statutory agreements or whatever, there is something to look into. Many water companies are trying to do the right thing. It is just that, if a water company changes ownership or changes future, the communities want a bit more certainty. Certainty would be great to bring into this.



Q24 **Barry Gardiner:** Would you welcome the power that the Bill would have given you to require the companies to do that?

John Curtin: I cannot think of any position where a power would have been useful. At the moment, we have had really good engagement with water companies and they have worked together. Longer-term certainty is needed, rather than extra powers and more laws. That is my personal view.

Chair: Geraint, you can come in, but very shortly. Otherwise you are going to be cut off.

Q25 **Geraint Davies:** I understand the guillotine threat. Can I ask James whether there is good communication with other Departments, in particular the Department for Transport, on ensuring that new infrastructure projects on things like railways and motorways also double as flood protection? I know railways do that in the north of Wales. On resilience, can I ask John whether it is a good idea to have grants for people to put plastic sheeting, or whatever it is, round their walls and lift their plugs up so they are resilient? As with the case of the hairdresser, that means they can get back to work. Finally, should that also include butts on the top of houses to collect water? That is so the sewers are not overrun with water in flash flooding, but there is a delay, so, in terms of urban drainage, we get less flooding in urban environments.

Sir James Bevan: On your first question, yes, there is good collaboration with the Department for Transport. We often work with them to ensure that the flood defences we build will help protect motorways or roads. They sometimes work with us to make sure their motorways and roads form part of a flood defence we are constructing. We have developed the same level of co-operation with Network Rail. It is mutually beneficial. They have an interest in not having their trains underwater. We have an interest in using their infrastructure to help work with our flood defences. Again, it can always be better, but it is a pretty strong relationship.

John Curtin: One of the main elements in Mytholmroyd's scheme is that we took out a road bridge, because that was the bottleneck for the river flows. The new bridge went in a couple of months ago.

On insurance policies, I think this is what Emma was talking about earlier. There are so many announcements today, but hidden in some of those announcements is this "build back better". There are two things, and Emma may be better placed to talk about them. First, there will be a grant so people can do what Sue did at Headquarters, rather than paying themselves. Secondly, it will make sure that people's premiums are reduced if they have taken actions to protect their own properties. This is what comes together in this mosaic. We need all these pieces together, so that is really welcome news.

Q26 **Geraint Davies:** Can you perhaps look into water butts for public



buildings that capture water on roofs, so it does not flood the sewers?

Chair: That is a final question on this one, Geraint.

Emma Howard Boyd: We can emphasise the need to join up across different Departments and arm's-length bodies. You have highlighted the Department for Transport, but it also needs to be MHCLG and Education. We are talking about all types of infrastructure and social infrastructure as well. Since the Government made their commitment to net zero, groups are meeting cross-Government to look at climate change as an issue. I would suggest that adaptation and resilience is going up the agenda there. In his statement today, the Secretary of State has set out more ambition to join those dots up. This is still work in progress, but it feels like it is in a better place.

Similarly, around regulations for buildings, these are all areas where we need to look at not just carbon but water. In many aspects, water is also carbon, but it can have a storage aspect as well.

Geraint Davies: Have a look at the butts.

Q27 **Dr Hudson:** I want to move on to how you can work more with communities. A lot of people acknowledge that engagement with communities on decisions around flood risk needs to be a little more meaningful. What do you think the main obstacles are to people feeling involved in that process, such that their frontline local knowledge is fully valued?

John Curtin: This is the biggest journey we have been on as an organisation. I have been doing this for 20-odd years—I will not say exactly. I remember, when I first started, we were coming along and blessing communities with our expert knowledge and wondering why they were not all so appreciative. There has been and there is a cultural switch in the organisation to listen to and absorb more knowledge. After the 2016 floods, the Cumbria partnership was about distilling all those voices. We do a lot of detailed work on this.

I have been in post-flood surgeries where EA staff have rolled out maps and communities have come in with pens to show us where the flow paths were to help us with future flood models. We do loads of drop-in centres when we are designing schemes. There are some really great innovations. In some places, we have a model of the valley so the community can play with different elements and see what difference an extra reservoir would make, or what would happen if you took a bridge out. We have moved on no end.

We have not spoken about them, but it is worth mentioning the regional flood and coastal committees. They are key. There are 12 of them around the country. They are all made from a majority of local authority elected officials. The scale of those committees means they are across boundaries. There is a committee for the Thames. There is a committee for the Severn. They work at a scale that can bring together the voice of



local areas but be strategic enough to make some choices on funding. Although we have a national programme—the £5.2 billion—the local committees are the ones that do the final adjustments with local choices.

This is one of the biggest journeys we have been on. There is more to do. This next sentence may resonate with you as MPs. Sometimes it is difficult to distil one community voice when approaching a flood scheme. We tend to have to balance a lot of different demands. The York scheme is a great example. You have people who are very passionate about cycle paths, but there are other people who are desperate just to have the flood risk scheme in as quickly as possible. We really try hard, but sometimes we are trying to balance what can be conflicting views from a community.

Q28 **Dr Hudson:** I am encouraged that you say it is a journey and that more can be done. You have, quite rightly, said that there are often differing opinions within communities as to what should and should not be done. Equally, on the other side, you have mentioned that there are national agencies, local committees and lots of different groups. Do you think that perhaps is a bit of a problem, in terms of engagement? Does the number of bodies involved make it harder for local communities to engage meaningfully? Whom should we engage with?

John Curtin: It is a complex world. As the agency, 95% of our folk are out in areas. They are at the frontline. They live in the communities they are working with. One bit we are trying to strengthen in this strategy is not our leadership in a dominant role, but perhaps being the focal point to try to bring together more of these partnerships with other people. It is complicated. You do not want communities trying to rustle around and work out, “I was flooded by a certain type of water. Who is responsible?” We can have more of a one-shop approach to what we do. We can do that because of the local leadership the Environment Agency has, with most of our folk being in and living in these communities.

Emma Howard Boyd: The other thing we need to emphasise is getting ahead of the curve, for those communities on the edge of the flooding or those communities that have that risk but have not been flooded for a while. That is why the third strand of our strategy, which is a nation ready to respond and adapt to flooding and coastal change, is so important. We need to grow the proportion of the population who understand that they are at flood risk, to understand the actions they can take, whether they own their homes, are renting them, are in temporary accommodation, et cetera. That is where we need to place some more emphasis.

Sir James Bevan: I wanted to add two points. First, I recognise this journey that John is describing. I have only been in the agency for five years, but I think it is true that, 20 years ago, the Environment Agency would come along, plonk down a flood scheme that it thought was the right one and go away. There is a trade-off between the consultation that we want to do, and we do very actively now with communities, and the



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pace with which you can sometimes move. We need to recognise that. Sometimes we get it wrong. Often, where a scheme is taking a while to be delivered, the reason for that is not that the EA is being dilatory. It is that we are punctiliously trying to consult and get the right answer that works for the maximum number of people. That is the first point.

Secondly, to your point about whether there are too many actors on the stage, it is usually pretty clear that the EA has to lead and convene decisions about flood schemes. We accept that role happily. Having other actors on the stage is helpful. Having a water company or a local authority, they bring expertise and knowledge. They sometimes bring funding that, together, allows us to achieve something that we would not otherwise. My view is that none of us is as good as all of us.

Dr Hudson: Thank you. That is very, very clear. Hopefully I have gained you some time there, Chair.

Chair: Yes, I am about to lose it now: Geraint, one supplementary, please.

Q29 **Geraint Davies:** I was going to come in on funding, if I may. Can I talk about that for a moment? This is simply two questions. Barry has already mentioned the increase in funding. Is that carried across England and Wales?

On the formula for funding, I know we have talked about £5 for every £1 invested, but is there still an issue about perhaps putting too much weight on more expensive property in more expensive towns, so London gets a better deal than Carlisle, for instance? When I was in charge of flood risk management across Wales, we looked at this formula again because poorer people in houses at the top of the valleys were not properly recompensed or invested in, in terms of flood risk management. I was wondering how you factored in the value of suffering as opposed to the value of property, and whether money was in fact going across the border to Wales, in particular when there are freak events, as there was last year.

Sir James Bevan: The money will always go where the risk is. It does not go anywhere else. That is what drives the policy in our approach. We have a very good collaboration with Natural Resources Wales in managing flood risk, with very intense working in predicting flood risk and then responding to it. We saw that over last winter. I want to pay tribute to our NRW colleagues.

On the question of the formula and whether that pushes money in particular areas, maybe John Curtin would like to say a word about how the new partnership funding formula now works.

John Curtin: We can send that through as well. I know this comes up quite a lot, but the funding for the current programme is pretty even, north, south, east and west, and split pretty evenly between coast and inland. We follow Green Book rules, so of course property value is part of



the mechanism for the funding. There is an offset in there on deprivation, so there is an extra factor put in for where there are more deprived areas. Sometimes there is an inbuilt balance. Bigger, more expensive houses are usually sparser, so there are fewer of them, whereas more dense houses may be of lower value but there are more of them to protect. It is quite complicated, but we can show and demonstrate that there is not a bias in where the money goes in this country.

Geraint Davies: I will leave it there.

Q30 **Ian Byrne:** I am going to direct this at Emma. It is touching on developments and flood risk. You said that your advice on planning applications for new homes is usually followed, but does the system take enough account of the cumulative effects of development and how flood risk will change in the future?

Emma Howard Boyd: Thank you for that question. It is an area that we spend a lot of time discussing. We have our role as a statutory consultee, where we give our advice. One thing we would like to see is that, where we have worked with the planning authorities to look at further enhancements of resilience measures, those are actually undertaken by the developers in the projects they are undertaking. I think this is something that is going to be explored and that our Secretary of State is very interested in. Development will take place in the flood plain. If you just think of London, it is in the flood plain. We have the Thames Barrier providing certain aspects of defence for London. We know that bringing in resilience measures is going to be absolutely key, but we need to make sure those measures are fulfilled by the organisation, the developer and the infrastructure provider where we have given that advice.

Sir James Bevan: To underline what Emma has said, the overall planning policy is right, which is that there should be no development on the flood plain unless there is no realistic alternative—sometimes there is no alternative—and then only if the development does not increase others' flood risk, and there are mitigations like raised floor levels, et cetera, to reduce the risk for that development. The policy is okay, and the practice is pretty good. One of you has already cited the figure that 99% of new homes in planning applications get decided in line with our advice. All that is good, but we could improve the system to ensure that it is more rigorously followed everywhere.

I will just add a few thoughts to what Emma has said. On our own planning role, we are a statutory consultee, but at the moment only for developments in areas of existing flood risk. We know that, over time, there are going to be other areas that are also at flood risk because of climate change. We would be interested in extending our role to be consulted on those areas at future flood risk.

Transparency of decision-making is needed. Sunshine is the best disinfectant. It would be good if, when planning authorities make decisions that are contrary to EA advice, they had to publicise those



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online. Maybe they should have to tell the Government of those decisions. That will give the Government the option to call them in if they wanted.

A final thought is about money. We normally set conditions on developments in the flood plain that developers have to meet. Sometimes, developers turn out not to meet those conditions, but we do not have the resources, neither do the local authorities, to go and check if the developers have done what they promised to do, or to make them do what they did not do. There is an issue there about resourcing either us or the local authorities better to police development decisions.

Another way to do that, which we have talked about before—maybe in this Committee—is a bond. Require a developer to post a financial bond and, if they do not give effect to the mitigations they are asked to give effect to, they lose the bond.

Q31 **Ian Byrne:** To follow up on that, James, regarding what you have just touched on, I think the EA has said that, over the next 50 years, we will potentially have 10.4 million homes at risk of some sort of flooding. With the planned changes to planning that the Government are bringing up, has the EA been consulted on any of the changes?

Sir James Bevan: We are in the process of talking to the Government right now about options to reform planning policy. That is a good relationship and we are contributing to that. The Government have also said, as you will know, that they will introduce some new legislation making it easier to build homes in the places people want to live. Some of those will be on the flood plain. The Government will be consulting on that and we will be contributing directly to that too.

Q32 **Ian Byrne:** Are the Government listening to you?

Sir James Bevan: Yes.

Q33 **Chair:** Before we leave this, in my own area a garden village is being put forward in the Culm Valley. Further up, there is an area that floods: Kentisbeare. If we build a waterpark, lakes and ponds, we can store water and make the whole area better from a flood point of view. When you are looking at a planning application, to what extent can you advise a flooding gain, if you like, from storing more water with a new development to help the village next door, in this case Kentisbeare? I really like your idea of the financial bond. Otherwise, developers will come along and say, "Well, it is all too expensive now. We cannot provide the waterpark, but we have built the houses", so the bond is really good. To what extent can you do that? Is there any way you can?

Sir James Bevan: We try. We do not just seek to intervene in the planning process on individual applications related to specific developments. We also seek to work on strategic masterplans. Across whole city, town or country areas, we work with the local authority to



designate specific areas for specific land use that can help promote exactly the kind of benign effects that you are talking about.

Q34 Julian Sturdy: Thank you for attending. I want to move on to natural flood management. We have heard a lot of talk in this Committee over the last 12 months of improving natural flood management, soil quality, organic matter, so that soil has more water-holding capacity, natural water storage in catchment areas, etc. Having said that, what improvements have you had in the design of Defra's environmental land management schemes for promoting these natural flood management measures?

John Curtin: This is probably one of the most exciting bits about the new farming payments system that will come in on ELMS. As you know, payment for public good will be the way that payments are replaced. Flood resilience is in as one of the public good elements. We have been working really closely with the agriculture team in Defra on what that might look like. It means more money could come this way than the Pillar 2 payments that came from the CAP. There is far more on this public good choice.

We have started to map where those interventions might work well. Broadly speaking, there are 15 different natural flood management interventions and some work better in some places, such as sand dunes, upland forest and storage. We have done some work so that we can target where those payments would be best made, from a flood resilience point of view. Some of the early modelling is quite encouraging. For some of the rural, more remote communities at risk, we think there are about 400,000 properties that could benefit from targeted payments, so that farmers and land use management could make those changes.

I will go back to what I said before. Natural flood management is not a replacement for hard engineering. This is all about complementary work. It is quite interesting that the Dutch, who are famed for their engineering, do quite a lot of natural flood management. They call it a climate buffer. They talk about how it is a buffer alongside their existing infrastructure to buy that infrastructure more time as climate kicks in. It is really exciting. We are doing some great mapping work to make sure that the right payments can be targeted right. We are just waiting to see the outcome of any consultation and then move to the pilot stage.

Emma Howard Boyd: It is that link between natural flood management and raising additional finance, potentially as part of our partnership finance. It is that knowledge that the range of things we need to do for the country will require the private sector getting involved. Throughout the last five or six years, we have had some great examples. Bacton Gas Terminal is one, where we have worked with the private sector. The scheme that has been put in place there, using sand to create a climate buffer for the gas terminal, has also allowed individual houses and villages to be protected as well, leveraging in money from the private sector.



We also have some projects with Defra, the Esmée Fairbairn Foundation and Triodos Bank to explore how we can find the revenue flows from investing in nature-based solutions. Some of that might eventually link back to ELMS—the environmental land management schemes. Some of that might link to where we can work with the development community as well. There is no doubt that investors and banks are increasingly interested in understanding the resilience of their investments to climate change.

What is really encouraging about our strategy and how it links into the Environment Bill, the Agriculture Bill and the 25-year environment plan is that join-up of interventions from different parts of Defra and different parts of Government, to really start factoring in this overall resilience and protection strategy.

Sir James Bevan: I want to underline one thing that is new and good about the new strategy. It thinks about farmers and farming for the first time seriously. As you will know, Chair, about 12% of agricultural land in England is at flood risk. That includes 57% of all the grade 1 agricultural land, so we really need to protect it. I do not think we have thought about it enough in the past. That is why the strategy devotes quite considerable space to farming. That is why we wrote it in consultation with the NFU. That is why it underlines that, while the wrong kind of farming can increase flood risk, the right kind of farming can reduce it and produce all sorts of other benefits, all of which we hope to extract from the new ELMS.

John Curtin: There is another really important feature of ELMS, if we get this right. If we are into a natural flood management revolution going forward, as we have talked about in the strategy, while it is fine to pay farmers to make those interventions, one of the thornier issues has been who pays for long-term maintenance to make sure those things stay there if different farmers take over the land. ELMS gives a vehicle to pay for the maintenance of these natural solutions, alongside us maintaining more traditional assets. That is the other real advantage for this if we get it right.

Q35 **Julian Sturdy:** I have two quick follow-ups. I will be as quick as possible. Do you have any concern over ELMS that this is going to be a voluntary scheme for farmers? You might not get everyone participating in those certain critical catchment areas you have touched on.

John Curtin: That is why the pilots will be really important. A lot of people will be learning different ways of doing this and different payment systems if the pilots work well. These things are happening. There is a great example in Shipston-on-Stour. These farmers live in the communities. They know that those downstream have been suffering horrific flooding and there is an awful lot of voluntary work that happens. You tend to find that the community are better talking to the farmers to start the ball rolling than perhaps the Environment Agency with a clipboard. Once one of the farmers is getting out there and starting it, it



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gets a momentum to it. The pilots will be really key, not least to find out from farmers what the barriers for this are. Paying for the maintenance of what they put in might be one of the key barriers to remove.

Q36 Julian Sturdy: Thank you for that. You have talked about targeted measures, so in certain catchment areas. What about the more overarching measures about improving soil health? Better soil health and higher organic matter means that those soils can hold more water, so less runoff. There are other things, like cover cropping so you do not have bare soil over winter, which increases runoff and obviously soil runoff into water courses, which causes other problems as well.

John Curtin: At the moment, I think Defra is looking at three tiers of localised payments. One of the tiers is the overall payment for all, which I think will link to wider benefits. Then you can have more targeted payments for where it is best to have the trees, best to have slow flow and best to be storing water for longer. I think it will do it with the geography tiering in the consultation approach.

Q37 Julian Sturdy: But you support that.

John Curtin: Yes.

Emma Howard Boyd: You have highlighted the potential for multiple impacts as well. This is not just about flooding. It is also about water resources and water quality. That is what is exciting about this join-up.

Q38 Chair: Before we leave this one, in some of the eastern counties, where they are growing a lot of vegetables, the Environment Agency sometimes has to stop farmers extracting water. Sometimes water companies need more water for human consumption. Through ELMS, are you also looking at where perhaps more water could be stored in these areas? I understand we need water for human consumption, but we also need to grow vegetables. Some of those particular eastern counties are very dry, not at all the times of the year, but when you are growing the vegetables they usually are.

Emma Howard Boyd: I would refer to a couple of pages on future fens in the strategy. We have a specific project looking precisely at this, with some very specific targets to understand how this best fits into ELMS over the next four to five years. This is where we are really pleased with the engagement we have had with the NFU, local farmers and Water Resources East to really try to crack these incredibly important questions for the resilience of that part of the world.

Q39 Chair: I have one final, quite blunt, question. To what extent have you, the Environment Agency, been directly involved with Defra over the design of ELMS?

Sir James Bevan: We have been very closely involved from day one, in developing the concept. We have always supported the concept of public money for public goods. Since that concept became enshrined as the key



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principle for the future agriculture policy, we have been very closely involved. We have seconded people to Defra, who are helping design the scheme.

Q40 Rosie Duffield: The Government have announced a doubling of capital investment in flood and coastal schemes, but your written evidence said that your operational costs are rising. You have mentioned, for example, working with private investors and the private sector. Is that enough of a financial boost to manage the pressures of your budget? Is £23 million over five years for coastal flooding monitoring enough?

John Curtin: On asset maintenance, it is probably worth reflecting on the scale of assets in this country for flood risk that we manage. We have 7,000 kilometres of raised defences, which, if you stretched them end to end, would go from England to New Delhi. That is a massive length of assets we manage. There are 22,000 structures, some of them really significant, like the Thames Barrier, and some of them smaller, but equally important locally. That is a huge asset base.

We have had some brilliant news from Government about the amount of capital investment coming. In that announcement, there was also £120 million to repair defences damaged during the recent floods. In the spending review to come, we are going to have to make a strong case for the amount of money needed to keep our assets in good condition. It is not quite as visible. Many people can open new flood schemes. Lots of people turn up and cut a ribbon. There is not so much of that when you are just mending and oiling a pump.

We need to make a really strong case, not least because, as you say, the amount of our assets is growing due to the extra capital investment. Climate change is having a fundamental effect on our existing assets. A lot of our flood defences are earth banks, as they are in America and the Netherlands. In recent years, we have had baking summers with record-breaking temperatures that compact these earth banks and then the saturation of record-breaking rainfall. That is adding extra stress on to these assets, plus the frequency of flooding, plus the sea level rise and storminess.

It is not just that the scale of our asset base, which is already massive, is increasing, but climate change is having a fundamental effect on how much repair work we need. We need to make a really strong case and need Government support on our maintenance. The other thing that would be great is a longer-term settlement. We have a great longer-term settlement on capital, which is good for transparency for communities and great for efficiencies. If we could also have a complementary longer-term settlement for maintenance, that would be great too.

I know this is the EA slot, but if you are talking to people in local authorities, it is worth you exploring the transparency of their funding. IDBs and local authorities are key partners in keeping this country safe from flooding. Sometimes there are issues with the transparency, if you



talk to local authority members about whether they get the money for maintaining their own assets. We have to make a great case, but Government also need to understand the complete picture, to make sure we do not have a weakest link just because of some strange funding mechanism.

Q41 Rosie Duffield: That made me think about my local authority and its shoreline management plan policy. They are saying that they can implement that and keep our sea defences in Whitstable only if funding permits. If they are not getting extra money from Government, can they tap into some of that £23 million directly from you, for example?

John Curtin: I think the £23 million you are talking about is the monitoring and that is for everyone. We lead it, but actually local authorities lead different zones and we lead different zones. That is fine. That is a credible amount for monitoring, because we have quite a long history on coastal monitoring. There are questions to be asked about local authorities getting the money they need to maintain their assets. MHCLG pays, but it is not ring fenced. Sometimes, if I talk to my equivalents in local authorities, they may not know what money they are getting and have that transparency. When it comes to the spending review and we make the case for maintaining the assets of this nation, we need a collective view of the overall investment in the Environment Agency, local authorities and IDBs.

Sir James Bevan: On that point about coastal erosion, it is a good example of where together we are stronger. The local authorities are responsible for managing coastal erosion and the Environment Agency is responsible for managing coastal flood risk. The two are almost identical so, in practice, we have to, and we do, work very well together with the local authorities. That can often help ensure that, together, we find the money we need for the kinds of things we need to do. Within the current £2.6 billion investment programme, which is in its final year or so now, there are about 80 schemes that tackle coastal erosion and will better protect about 15,000 properties.

Emma Howard Boyd: I will make a slightly wider point. The Institution of Civil Engineers produced a really interesting report about 18 months ago, which looked at all the infrastructure spend in the UK in the current spending period. We are in our final year of that. The flood budget—the £2.6 billion—was roughly 1% of overall infrastructure spend in this country. Roughly 55% of that was private sector-funded, 45% public sector, or maybe it is the other way around. The general point is that the budget we have for the current spending review is a fraction of overall infrastructure spend.

As we approach the next five or six years, we need to make sure that all that infrastructure meets net zero commitments, but also adaptation and resilience requirements. Within that, given that a large contribution of it comes from the private sector, that is one way of us working with others around infrastructure builds and leveraging in other finance.



The announcements today from Flood Re are really early announcements, but there may be ways that that will signal a revenue flow because of reduced costs of insurance that can be captured, frontloaded and allow further investment in flood risk. My background is finance. I was part of the Government's Green Finance Taskforce. I am working with our team. We have a very small team focusing on future finance with the Green Finance Institute because we recognise that this is important for the country as a whole. Notwithstanding the brilliant news of the doubling of our flood budget, far more needs to be done in preparing the country as a whole, and all its infrastructure spend and maintenance, for climate resilience.

Rosie Duffield: Thanks, all three of you. Those were really useful answers and very informative.

Chair: Maintenance of assets has been a problem for years, not only for you, the Environment Agency, but for the internal drainage boards and everyone. I think this Committee will write to Government. There are some areas where you may need a certain amount of dredging. In some very lowland, slow-flowing rivers it does not happen. Then you get floods. Some of the banks erode. Some of the pumps give up. All these things are what we need to do more of. Sometimes we do the capital schemes. Any evidence you want to provide us on that in writing would be useful, and we will take it up with Government. Thank you for those answers.

Q42 **Geraint Davies:** Emma, on the financial side, following the issue about the private sector and insurance, do you agree that there may be a case for local authorities to provide collective flood risk management insurance, in the knowledge that it is often poorer households in more at-risk housing estates that end up not insuring their houses? When they get flooded, they cannot get reinsurance. Do you think there is something more imaginative that might be done by the public sector?

Emma Howard Boyd: That is a really interesting issue to explore. A lot of early insurance schemes came through mutuals. Maybe what you have identified is where you get a different mutual that is supporting poorer communities. Perhaps we can address that with our colleagues at Flood Re.

Q43 **Geraint Davies:** As another supplementary on insurance, if your home is flooded, it is very costly to get it back to normal. Had you invested in the first instance in rudimentary resilience, whether it is a step at the front, a gate in the garden, plastic around the lower walls, higher plug sockets, or if you had a facility to take your stuff upstairs or, indeed, your ground floor was a garage that you could wipe down, the costs when you were flooded would not be great. Therefore, it would not be difficult to get reinsured. Is there not a case to have an overarching look at the finances to invest in resilience, reduce the costs and share that with a common insurance scheme across local authorities?



Emma Howard Boyd: Again, these are the sorts of things that we want to explore, not just with our colleagues in the insurance industry. The move today from Flood Re is really interesting—this “build back better” concept. It is also through organisations like the Green Finance Institute. I have been part of the Global Commission on Adaptation, doing work on finance. There is an initiative called the Coalition for Climate Resilient Investment. These are all the sorts of things that need to work, not just at a large scale, but have local applications as well. Yes, this is very much the area that we need to put attention on.

Q44 **Geraint Davies:** As it happens, before I was an MP, I used to chair Flood Risk Management Wales, which was in charge of adapting Wales in respect of flood risk management on behalf of the Environment Agency. On Barry’s point about the increase from £2.6 billion to £5.2 billion as the aggregate investment, it still is a bit surprising that there is only a 12% increase in the number of homes protected. Is that about asset investment and maintenance? Is it about infrastructure protection, or is it about protecting new homes on the flood plain? It seems to be intuitive that spending a lot of money protecting a few new homes on flood plains is the wrong approach. Finally, can I ask whether there are any innovative ideas around floating houses, houses on stilts or anything like that in the background?

John Curtin: On the funding to the next transition, we promised to get back with some detail. There was low-hanging fruit. Inflation plays a part as well. From the beginning of the first six-year programme to the end of the next one will be a 12-year difference.

On the innovation, yes, it happens. There are places I know where people have invested in having their whole houses lifted, having their whole foundations lifted and/or converting part of their houses. That is much better being built in at the beginning, rather than retrofitting to a property, but there are places that do that. Along the Thames, there are people who have built quite a lot of innovation into it. We need more of it.

Q45 **Geraint Davies:** Finally, do you think there might be a case—I do not want to contradict what I just said—to allow certain permitted development in a flood plain, for example offices that operate on the first floor and beneath that is somewhere you park your car? In the knowledge that there probably will be a flood, you are resilient for that and just move the car. Why can you not do that?

John Curtin: It is probably what James said before. If you said, “No development in the flood plain”, you would freeze development in most of our major cities. If you think about it, most of our major cities have grown up on either the coast or rivers for trade. Taking York as the example, if you walk through York, most of the modern buildings will have a carpark. People find it strange because there are windows with openings. You think, “Why on earth is there a window to the carpark?” That is all designed so the water flows into it and naturally keeps the



flood plain that would have been there if it was not for the building. As long as there is safe access and small designs like curves on the upstream face, so if debris comes down it does not bang the building, they can all be built in and you can build safely and resiliently.

- Q46 **Geraint Davies:** Resilience is about saying, “We cannot protect everything. We have to adopt risk management”, in essence. We accept they will be flooded, and we just do not have old people’s homes and schools in the middle of flood plains with highly vulnerable people at risk from flooding. Instead, we have a situation where, when the flood comes in, nobody dies, and we can get back to normal. Is that the basic approach?

John Curtin: Yes, absolutely.

Emma Howard Boyd: Innovation is absolutely key to all aspects of this, whether in nature-based solutions or equally in some of our harder engineering solutions.

- Q47 **Geraint Davies:** Finally, do people know whether Wales is getting its fair share of this new £2.6 billion?

John Curtin: That is an England settlement. Flooding is a devolved issue; you will know that. I know that Natural Resources Wales and the Welsh Government are working on a complementary strategy. We have been working together, not least on some catchments, like the River Severn and the River Wye, that cross the boundaries. The actual settlement will be down to the Welsh Government.

Chair: That final question is one for the Secretary of State when he comes in. It is a political question of how the Barnett formula is worked out, so you can save that one up for him. We will now move on to the flooding we had back in the winter and Storm Dennis. I think sometimes, with Covid, we forget all the suffering that went on with flooding this last year.

- Q48 **Robbie Moore:** Thank you to all the witnesses for your contributions so far. It is most useful. As the Chair said, I am looking back to what was only six months ago, which seems like a long time ago now, and the recent flooding we experienced. Over autumn and winter last year, I think there were about 4,600 properties flooded across England and about 77,000 hectares of farmland. Now that we are five to six months on from that period, is this expected to happen again, and more frequently? What lessons do we need to learn from these types of flood events?

I am saying this representing a constituency, Keighley in West Yorkshire, that was impacted. I would add that we saw the Environment Agency put together temporary flood measures, defence mechanisms, which worked. Learning from lessons learned, I would be grateful if you could perhaps comment on things like modelling, collaboration and these temporary mechanisms that I have seen being put in place.



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Emma Howard Boyd: As I said in my opening comments, and you just said it, these were extremely challenging times throughout the flooding periods we had. We take some consolation from the comparison with 2007 and how much more was protected from that time, given that we were experiencing higher river levels and greater rainfall throughout this winter. That does not make any difference to those individuals who were flooded throughout this winter and the challenges that they will have faced in this period of lockdown. Many of them are not back in houses and are not able to start that work.

I emphasised how important it was for us to crack on with our maintenance work. We are always thinking of the next winter, but we know that flooding can take place, as it did last summer, throughout the year. All three of us have visited many different communities. When you are going through a period of unsettled weather, you can feel the anxiety in those places. It is really important that we are out there with our schemes. We would love to take the Committee on a visit, which might have to be a virtual visit, perhaps to somewhere like the Calder Valley where we have seen recent flooding.

I was in Mytholmroyd in November last year, ahead of the flooding that took place earlier this year. Having been there throughout 2015 and 2016, I was reminded that, despite the scheme we had been building over the last period, all the consultation with the communities, the fantastic modelling we have been able to show, 3D modelling that shows how our schemes will make a difference, we knew at that point that, when the schemes were complete, we were not able to protect that valley from what it experienced in the 2015 and 2016 floods. That is why this emphasis on the range of measures, including allowing measures to be taking place at an individual household level, which will allow people to get back into their houses if they experience flooding, is so vital to our work.

We also recognise that this is only going to increase in regularity. We need to work very closely with those communities that have been flooded recently, but also continue to build up knowledge of what communities that are living at flood risk but have not experienced that recently need to do, in terms of bigger schemes and property-level schemes. Those are the sorts of things that we wanted to emphasise.

In terms of lessons learned, there are always things that we can do better and differently. Every flood we experience, with our partners, we will work through our response, then how we go through to the recovery and what happens next, in terms of what repair and maintenance we need to put in place to those schemes. At that point, I should hand over to John, who will have a bit more of the detail of what we have been doing these last few months.

John Curtin: First and foremost, we have been repairing all the assets that were damaged. As I say, there was about £120 million worth of



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damage. We will make sure that, when we go into this winter, no one is at more risk because of damage that is going forward.

Emma touched on the anxiety of flooding. One of the partnership funding rules for attracting cash for schemes that we have changed is to recognise the mental health impacts of flooding. It was rather peculiar that we could value someone losing a car or a fridge freezer but not the decades of mental health anxiety and stresses and strains. You will have spoken to these people as well, as I have. When rain hits their windows, there are those flashbacks that go on. We can now recognise the avoidance of mental health impacts in the valuation of these schemes. There is lots of great stuff on that.

The whole thrust of the strategy that we have started today is about trying to get ahead of what climate change is bringing. This is one of my biggest concerns. Climate has come up the agenda brilliantly over the last few years and net zero is now a target for this nation, which is fantastic—trying to stop the carbon that is causing this problem. But I am afraid that one of the harsh facts is that the climate has already changed. Even if we do not put another ounce of carbon into the atmosphere, the seas are still going to rise and rainfall will still get more intense. We have to make sure people understand that there is not a binary choice between net zero and adaptation. We are going to have to adapt.

I will finish with one line. This is the most sobering line that I have read. The IPCC did a special report last September on sea level rise and the melting of Antarctica and Greenland. This is section B.3. This line says: "Sea level continues to rise at an increasing rate. Extreme sea level events that are historically rare (once per century in the recent past) are projected to occur frequently (at least once per year) at many locations by 2050", and here is the killer one: in all climate scenarios. Whatever we do on carbon, people are talking about those massive coastal events like 1953, the near miss in 2013, becoming annual events in just 2050. That is only a few more six-year capital investments we have to do.

This shows why it is such a big day today to launch all these different elements. The climate will keep changing. We must get ahead of it and work with communities to understand that we are in a different world and they are a key part to how we take it forward.

Sir James Bevan: To the question of whether flooding will happen again, yes, I am afraid it will. Nature will always be stronger than we are. If you ask whether we can reduce the extent and impact of that flooding, we can, absolutely. The figures show that. Emma referred to the summer 2007 floods; 55,000 homes and businesses got flooded in 2007. Only 10,000 properties were protected. In winter 2015-16, which was my first experience of flooding, 21,000 properties were flooded and 23,000 were protected. In the winter that we are just talking about, 2019-20, we had 4,600 properties flooded and nearly 130,000 properties protected.



Those figures are not accidental. Those figures have happened because of the investment in flood defence and all the other measures we have been talking about. We can reduce the impact of flooding, but the key is, and this is real essence of the strategy, as John is saying, making sure not just that we protect the maximum number of people against flooding, but that communities are better able to come back more resiliently, quickly, safely and vibrantly afterwards.

Q49 Robbie Moore: From experience back in the wintertime, where we were seeing businesses and homes being re-flooded or reaffected, like in the Calder Valley, there was a huge apprehension and nervousness—a huge fear factor. Commenting on collaboration between you, local councils and emergency services, are there any lessons learned specifically in regard to that that can be adopted?

Sir James Bevan: It is good. It gets better every time we have an emergency. I think the secret is to be good before the emergency. What you do in peacetime will determine how you act in wartime. We are spending more and more of our time planning with the local authorities, planning with the emergency services, and practising with them, including with the military, such as putting up the kind of temporary defences that I think you saw in Keighley, Mr Moore, so practice, practice, practice.

Emma Howard Boyd: We have been training up our staff, so 6,000 of our colleagues across the agency are able to work in a flood incident. Visiting some of the incident rooms around the country, it was brilliant to see that colleagues, say, from the Somerset levels were delighted to go and help colleagues in and around York or Leeds who had helped them when they had their period of intense incident in 2013-14. It is wonderful to meet these colleagues in other parts of the country. We can bring in people who have had more recent expertise to work alongside colleagues who perhaps have not experienced the same amount of flooding recently. That is one of the strengths of the way we work as the Environment Agency.

Q50 Dr Hudson: Can I thank Emma, James and John for being in front of us today? There have been really thoughtful and helpful answers. John especially, coming back to a previous answer you made, thank you for highlighting the mental health implications of flooding. I think we underestimate the mental health issues that are related with flooding, both the anxiety that you fear you are going to be flooded and the trauma of the actual floods themselves. Thank you for highlighting that. Hopefully that is something we can push forward from our inquiry, the importance of resourcing that particular issue in terms of mental health.

I represent Penrith and the Border. As you have touched on in some of your answers, Cumbria has been hit hard over many years, not least Appleby in February this year. I echo Emma's and the Chair's thanks to the Environment Agency, the staff at the frontline on the ground for their fantastic work during, after and in the run-up to that, but also the local



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partners, volunteer groups, public bodies, et cetera. Thank you very much as well.

Sir James, you mentioned that there are a lot of actors on the stage with floods, in preparation and working when it happens. The Environment Agency perhaps is the stage director and the stage manager, with actors on stage as well. From the lessons we have learnt from the recent winter episodes, do you think that you, the Environment Agency, but also your local partners, those actors on the stage, have the resources and support to keep responding to these serious floods? As you have said today and we all acknowledge, they are going to keep coming.

Sir James Bevan: We will do the best we can with the money we have. That is the duty of any public body. As Emma said, I will pay tribute to our teams as well. It is very gracious of you, Dr Hudson, to do that. Our teams do a fantastic job. They are not particularly well paid, but they are really committed, and I am very proud of them.

Together we are stronger. The more we pool our resources, knowledge and expertise, the better we will be at managing these kinds of incidents. As far ahead as we can foresee, we are going to be in a resource-constrained environment, not just for the Environment Agency but in the country and in the public sector as a whole. If we work on the basis that no one is going to give us large amounts of extra money, the right approach is to go out and work with colleagues, partners and organisations, where pooling our resources together makes us stronger. That is our approach and it has been a pretty effective one.

Emma Howard Boyd: Our colleagues working in incident mode are not rewarded in the same way as emergency responders. That is something we are really keen to address in terms of resources, at the right time. We rely on a huge amount of goodwill from our colleagues, who are prepared to work day in and day out through those periods where they are literally working with communities to help them through these moments.

John Curtin: Thank you for the recognition of our folk. Sometimes the Environment Agency can be front and centre of any criticism during an event and our folk have been in incident mode for over a year now. This time last year it was a drought; then we had the floods, and then managing the coronavirus and still keeping all our great flood work going. Thank you for that recognition. They will appreciate it.

Q51 **Chair:** This is perhaps a question that we should have asked you before. How has Covid-19 impacted the agency's work and resources throughout the last few months?

Sir James Bevan: Obviously, we have all been impacted by coronavirus. The Environment Agency has continued to work throughout lockdown. On flooding, our field teams have continued to be out there, operating and maintaining our flood defence assets. The Thames Barrier was staffed and operational. All our other major assets were operational. We carried on with our flood warning service. We were ready to deploy to incidents



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as necessary. The construction of the new flood defences that we talked about continued almost unaffected, so that 90% of our construction sites carried on as normal through lockdown.

We worked assiduously with communities to reassure them that that continued working was not putting them at extra risk. In Mytholmroyd, which we have talked about a lot this afternoon, in the Calder Valley, where we are building a new flood defence scheme, the local community are very keen that that should move ahead quickly, as are we. They were also quite concerned about a lot of people coming in, who might or might not be enhancing their infection risk. We took a lot of care to talk to the local community about how we were deploying our people, and the hygiene measures we had in place, to reassure them that we could continue to build their flood defence scheme without increasing their infection risk.

As for the broader impacts on the Environment Agency beyond flooding, we have managed to keep all our critical services running, all the things that protect lives, livelihoods and the environment. We have continued to deploy our people, outdoors where necessary, with the right hygiene measures. We are now restarting all the other workplace activities that were slowed or stopped during the lockdown, the regulation, the fisheries, the navigation, all that kind of stuff. That is going forward. Like the rest of the public sector, though, most of our office-based staff are still working from home. They are likely to be working from home, I think, for several more months. We have made sure they have the kit and support they need to carry on delivering from where they are currently working.

Q52 Chair: Just before we finish, when Sheryll Murray and I were in Norfolk last year, we saw the coastal erosion. Some houses had to literally be moved and rebuilt further back. Then you have areas where it becomes uneconomic to maintain defences, either sea defences or inland defences. How are you getting on with being able to communicate this to people? If they have historically lived there for years and years and years, it is very difficult to say what you can protect and what you cannot. Does the strategy contain any strategy for dealing with that?

Sir James Bevan: Yes is the short answer. The slightly longer answer is that you are right: some communities will be unsustainable over the long term. It is a long-term issue. There is no list of communities. Any move of a community would need the consent of that community and the support of the authorities, but it is in the strategy because it is a long-term strategy. We are clear that we should start thinking about this now. We should start talking about this and listening to the local communities about the kind of alternative options they might want for the long term.

There are very good examples already in some places where you have significant coastal change, and we and the local authorities are already engaged in that dialogue. For example, in Norfolk, and I think the strategy refers to this, the local authorities already offer advice and



assistance to the local community, which includes finding alternative housing for those at risk and supporting businesses to find opportunities in neighbouring areas. We need to continue those conversations.

Q53 Mrs Murray: The scheme we saw was very similar to the one Emma mentioned, where they were putting sand in place to protect the coastline. They engaged with the community a lot. Is this sort of scheme something that the Environment Agency will be looking to use in other places? I would be interested to know, because it involved a lot of community buy-in, which they seem to have there. I wondered whether you see it as a way forward.

Emma Howard Boyd: We have identified other areas where these sorts of schemes may work. We have to look at the overall funding packages of this. There are instances where local communities have crowdsourced funding to support them. We need to take every opportunity to look at how we can work on different forms of schemes.

Where we talk about “build back better”, we recognise that, over time, in consultation with communities, we may need to talk about building back to better places as well. Sadly, over the years to come, that will gradually have to go up the agenda for some communities. It is very key to us, as we work on coastal schemes in particular, that it has to be done in partnership and has to take account, whether it is the mental health issues we have highlighted, of the lives that will be affected by making decisions over time along these lines.

Mrs Murray: That was very helpful. Thank you.

Chair: Of course, a big lot of funding came from the gas terminal, because they were protecting the gas terminal off the North Sea. They bought a lot of the sand to put in the area, which then protected the beaches as well. It really helps when we can get private sector funding in.

Q54 Geraint Davies: I was going to ask whether we had looked at international examples of bringing forward big schemes. I know when I was involved we looked at Kuala Lumpur. They had a tunnel under the city where the river flowed, and when it was not a rainy season they used it as a motorway or something. I know that is a very big issue. What is the biggest risk we face in the next 10 years, to get an idea of where we are going?

John Curtin: On international relationships, we have really key relationships with the Netherlands, Japan, Australia on forecasting, and America. Interestingly, Japan, which has very little space, does similar work to what you just described, with great underwater reservoirs. We have a bit of space and they can have multiple benefits, as we have talked about, but possibly will not be here for a while.

One of the key partnerships, going back to what I said earlier, concerns the vulnerability of our earth bank assets to what the climate is throwing at us. We are learning across the Dutch, ourselves and the Americans



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about how best to maintain those assets. You talked about how we maintained flood response during the Covid crisis. We and the Dutch had an interchange on a couple of telecons to see how we were all dealing with the complexities of that work. We have really strong partnerships because, regardless of the politics in each country, the challenge on the ground of managing flood risk is very similar.

Emma Howard Boyd: For me, one of the biggest risks is thinking that you make a choice between our net zero commitments and building in adaptation and resilience. From my perspective, there is no point investing in all this new technology that will help us deliver net zero if it washes away in a flood or melts in a heatwave. We really need to make sure there is joined-up thinking, as opposed to seeing them as two separate issues. We know it is locked in. We need to get on with racing ahead on resilience as well.

Chair: Thank you all very much, Emma, Sir James and John, for this afternoon. It is great that the flood strategy has been able to be presented before the Select Committee this afternoon. It has given us a great opportunity. We very much appreciate your frank and open answers. It has come over loud and clear that, whatever happens with climate change, we are going to get sea rises. Therefore, we need to deal with it and have practical ways of dealing with it. The way that the Environment Agency works across the agencies is also working. We have had a very positive meeting this afternoon. There is still much more to do, as always, certainly on maintenance and all these things there, and the message has come through loud and clear.

We appreciate your evidence. We will put together some ideas and put a letter together, I suspect, for the Government on what we have heard this afternoon. We wish you well with the flood strategy. Let us hope that we can protect, as far as possible, as many homes, as much farmland and as much as we can into the future, so that we all feel a little safer. I was flooded in 1981 with sea floods. I lost an awful lot of sheep and cattle. I tell you what: those memories are still there. When we talk about the mental state of people when they are flooded, I can understand that entirely. We are taking that into consideration as well with this flood strategy, which is also good.

Thank you very much, everybody, for some very good questions and answers. I now declare the meeting closed.