



Environmental Audit Committee

Oral evidence: Flooding: [Cooperation Across Government](#), HC 768

Wednesday 24 February 2016

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Members present: Mary Creagh (Chair), Peter Heaton-Jones, Caroline Lucas, John Mc Nally.

Questions 170 - 208

Witnesses: **Tim Kersley**, Head of Asset Management Strategy, Network Rail, **Jo Harrison**, Asset Management Director, United Utilities, **Hugh Ellis**, Head of Policy, Town and Country Planning Association, **Tom Jeynes**, Sustainable Development Manager (Humber), Associated British Ports, **Chris Woodroofe**, Head of Passenger Operations, Gatwick Airport, **Councillor Steve Sweeney**, Yorkshire Regional Flood and Coastal Committee and Calderdale Council, **Eamon Lally**, Principal Policy Adviser, Local Government Association, **Ian Glover**, Environment Sustainability Manager, National Grid, and **Ivan Le Fevre**, Head of Environment, Highways England, gave evidence.

Q170 Chair: Can I call the meeting to attention? I am Mary Creagh, the Chair of the Environmental Audit Committee. We have an illustrious group of guests with us this afternoon for our first ever roundtable as a Committee, which is being held to look into the resilience of our nation's infrastructure as part of our inquiry into flooding. We have about an hour and a half, and my colleagues and I have a variety of questions for you. I would like to begin by asking you, when you are replying or speaking, to speak into the microphones. If you can state your names so that the transcribers from Hansard and the recordists know who is speaking, so that we have that as a matter of public record, that would be great.

We are going to look at, hopefully, five areas: the generic approach to flood risk management and how institutions co-operate and collaborate when there is a flood event. We will be asking questions on the planning system and the strengths and weaknesses that you see in that; the Government's strategic approach to flood protection, and in particular the way it is financed; and what you would like to see coming out of the Government's resilience review and where you think future Government action is required. These will all be used as part of our report to influence, hopefully, Government's policy in this area.

I will begin by addressing my first question to Mr Woodroofe from Gatwick Airport and Mr Jeynes from Port of Immingham, ABP. When we looked at the Committee on Climate Change reports, both of your organisations were highlighted as areas where progress

to improve flood defences was lacking, or as being badly hit by flooding. Could you set out for us what you have done since those flood events a couple of years ago to improve your resilience.

Chris Woodroffe: Shall I start? My name is Chris Woodroffe, and I am Head of Passenger Operations for Gatwick Airport. Since the December 2013 flood events, we have had a review undertaken by one of our non-executive directors called David McMillan. He proposed 27 actions, and part of that was a £30 million investment fund, of which we have spent £20 million in the last two years, £4 million very specifically on flood prevention and flood protection and the other £16 million on a number of other aspects of flood resilience.

In parallel, we have also been doing some work jointly with the Environment Agency looking at flood modelling, because December 2013 was very much a wake-up call in terms of flooding. That work has just come into fruition and quite soon we will be sitting down with the Environment Agency and local councils to look at another alleviation scheme that will help Gatwick to be more flood resilient in the future and help the local area to be more flood resilient as well, because it is very much a joint scheme.

Tom Jeynes: Tom Jeynes, Associated British Ports. One of the key distinctions that is probably worth making, particularly in relation to ports, is that, generally speaking, the sorts of flooding events that we are talking about are, of course, tidal flooding events. There was a devastating tidal surge on 5 December 2013, when Port of Immingham was very badly affected. A number of other ports along the east coast were affected, but the Port of Immingham was particularly badly affected.

In terms of what we have done since then, obviously it goes without saying that a considerable amount of thought has gone into how we approach the subject of resilience, which has resulted in us completing a thorough survey of all of the ports that we have in our portfolio, looking at the risk of flooding and identifying key aspects of the infrastructure that are the most vulnerable. One of the particular things at the Port of Immingham that was vulnerable was our network of just over 40 substations that we have on the port.

Again, in a very similar way to my colleague at Gatwick, we have had enormous help and co-operation from the Environment Agency in looking at flood scenarios and the modelling, and looking at ways that we can invest in flood defence infrastructure in the Port of Immingham. Ports are quite interesting pieces of infrastructure in the sense that you want to facilitate that modal shift between land and sea, so that interface is very necessary. Equally, we have to be based in coastal locations but, on the other hand, that boundary between sea and land needs to be porous, as it were, otherwise you would not be able to serve the needs of shipping. There is quite a complicated set of infrastructure there that we need to look at with the Environment Agency.

We completed a full business impact analysis. We have now completed—and this is now in place—a very thorough business continuity plan. This is not to say, of course, that we did not have an emergency plan at the time and did not invoke it, but this has prompted us to thoroughly review our physical resilience in the way that we manage our key assets within the ports.

It is probably also worth saying that we have worked extremely hard and extremely well with our local resilience forum, the Emergency Planning Service for the Humber, because as a port authority, a harbour authority, we are a category 2 responder under the Civil Contingencies Act as well. Yes, there is an enormous amount of work that has taken place since December 2013 and we genuinely feel we are obviously in a better place now than we were then.

Q171 Caroline Lucas: Just a very quick follow up to Mr Woodroffe: you were talking about the 27 recommendations and I think I am right in saying that there was around £30 million available to help to implement the findings. My first question is: is that enough? Secondly, I think flood alerts were missed by duty staff. Does that mean that it simply was not a high enough issue on their radar? What was happening at that point?

Chris Woodroffe: One of the opportunities that we have addressed coming out of that event was making Gatwick Airport's flood warning system more relevant to Gatwick Airport. It sat on the boundary of three different flood areas. Since 2013, one of those actions was to have the Environment Agency work with us to have our own very specific and dedicated flood warning for Gatwick, and that is now being fed into our bronze/silver/gold response approach.

Q172 Caroline Lucas: You can assure us that £30 million is entirely sufficient to do everything that needs to be done?

Chris Woodroffe: We have spent £20 million so far, which means there is £10 million to go over the next year or two. I think that this is going to be an area where we will continue to invest beyond that period because the effects at Gatwick Airport of an event like that are very significant for the business. It is very much in our interest to invest and make Gatwick more resilient.

Q173 Chair: Your substations were flooded in December 2013. Are you confident that they would not flood were such a flood to happen tomorrow?

Chris Woodroffe: If an equivalent flood happened tomorrow, we are confident they would not flood because as part of that £20 million investment, in addition to looking at ways of preventing the water being there in the first place, we are also looking at how you protect those very key pieces of infrastructure from flooding. We have built walls and installed new equipment at a higher level above ground to make sure that if that floodwater came the effects would not be—

Q174 Chair: You are protected to a one in 100-year standard, even though the Committee on Climate Change recommends a one in 200-year standard for all critical national infrastructure assets.

Chris Woodroffe: We have an aspiration to become one in 100-year resilient and the modelling we have just finished has indicated areas where we will need to make some alleviation flood investment in order to reach that level. We will make those investments and then we will come back and review the flood modelling work again to continue to become more resilient in the future.

Q175 Chair: What flood standard would you say you were at at the moment? One in 75? One in 50?

Chris Woodroffe: What the December 2013 event demonstrated was that in South Terminal, where we had made the majority of our investments because that was the area most at risk, before 2008 the terminal would have been assessed at one in 20 years. We made a contribution jointly with the Environment Agency and Crawley Borough Council to the Upper Mole flood alleviation scheme where we contributed £4 million to a £15 million scheme. That took Gatwick from one in 20 years to one in 50 years. We then built on site a flood alleviation scheme of our own. It was an investment of about £8 million and that took Gatwick's South Terminal from one in 50 to one in 100 years. In North Terminal, the high-level modelling that had been done indicated that North Terminal was resilient to one in 100 years. What December 2013 demonstrated, which was a wake-up call, was that that was not true.

We have gone back, working with the Environment Agency again, to do some more detailed modelling and the result of that is we now know what we would like to do to become one in 100 years resilient in North Terminal. Our next step is to sit down with the Environment Agency and work out how we go about making that alleviation scheme happen in the future. In the interim, the two years since December 2013, we have not waited for the output of that modelling. What we have done instead is to invest the money on site, the £20 million I referred to earlier, in order to make sure that we could do everything that we could on site to prevent the effects of water that did come. Ideally, you prevent it from being there in the first place rather than to deal with it once it is on site.

Q176 Chair: Absolutely. Mr Jeynes, it is not clear what improvements in flood protection have been made in your port or are planned. We have also had evidence that some ports, having participated in the first round of resilience review planning, have decided not to provide an update as part of round 2. Can you point to any concrete examples that happened in the Port of Immingham or your other ports as a result of the floods that you experienced as a result of that tidal surge?

Tom Jeynes: Yes, I can. Specifically, at the Port of Immingham—again, in common with my colleague at Gatwick—all our substations have been reinforced to prevent, hopefully, flood water ingress into them now.

Q177 Chair: To what standard is that, because obviously tidal is different?

Tom Jeynes: The standard that we are working to generally around the port is, of course, the benchmark that was set by the 5 December tidal surge, and that was a one in 450 years event. Ideally along the front-line of the port, we would like to aim for a one in 1,000 years standard of protection. The tricky thing, of course, about the front-line of the port is that one of our vulnerabilities is our lock pit, which affords access for deep sea shipping to the enclosed dock at Immingham. We are currently working with the Environment Agency on a design for higher lock gates with what we call reverse head restraint capability. That is a way of bracing them in position against a reverse head of water because, essentially, the gates face the wrong way. They mitre the wrong way around, the whole point being to keep water into the enclosed dock, which, of course, 99% of the time these gates need to do, as opposed to repel—

Chair: It is like a mini Thames Barrier for Immingham?

Tom Jeynes: I suppose you could call it like that. The challenge, of course, in the lock at Immingham is not so much designing gates, although that is an enormous engineering challenge; the issue is finding a way of installing these new gates with higher crest heights while still obviously keeping the port open to commercial traffic. That is probably the most pressing challenge and these things do not exist on the shelf in a DIY store. That is an important part of what we do. Working in partnership with the Environment Agency and with local authorities is a process that we have engaged in with a number of our ports, particularly ports that have a strong urban association.

Ports generally tend to front urban areas. For example, at the Port of Grimsby, our sister port for the Port of Immingham that is just eight miles downstream, we recently started—it is approaching completion now—a process of reinforcing the front wall all around the frontage of the port, in partnership with the local authority, North East Lincolnshire Council, and the Environment Agency. We have all contributed towards this financially and of course in terms of planning and engagement, the whole idea being that we are trying to look at the area as a community, a group, an economic area, and not just simply identifying separate areas and saying, “That needs protecting, that needs protecting.” The whole point is to look it in a more holistic way.

I can point to similar projects that have taken place at King’s Lynn and, of course, at the Port of Hull. Parts of the city of Hull were very badly flooded on 5 December 2013, particularly the urban areas behind one of the docks that we operate at Hull called Albert Dock. It is fair to say there has been quite a lot of progress made. There will be continuing progress made and I think we are—

Q178 Chair: Thank you. Could you perhaps write to the Committee with the potential cost of these new gates and what you think the timescale for them will be?

Tom Jeynes: Yes, absolutely. As I said, these are very bespoke, very complicated pieces of infrastructure. The forces that act on gates like this, particularly if they are pointing in the wrong direction, are huge. The potential cost is anywhere up to about £5 million, particularly for the gates but, of course, the gates are only part of the solution. Further work along the front-line is also required, although a lot of that work has already taken place in various spots. These are things obviously that have to take place over time. The disruption, if you did it all immediately, would be huge because we still have a business to run.

Q179 Chair: Absolutely, thank you. Could we turn to Mr Glover of National Grid? We know that you have this £158 million flood defence programme particularly focused on your substations, but this winter we had flooded substations in Lancaster, with 55,000 homes without power. Where do you think your weak spots are in your defences?

Ian Glover: The £158 million for National Grid substations is for the high voltage, grid-scale ones—400,000 volts and 275,000 volt substations. We have a risk-based and systematic approach to flood risk assessment and this was developed through the ENA, the Energy Networks Association. We have assessed the flood risk according to the location of our substations, but we also target a one in 1,000 resilience for our substations. We are working towards that, understanding the risk where our current substations are and

prioritising flood defences in terms of both permanent flood defence but also temporary and demountable flood defences, to raise that resilience level.

Q180 Chair: Where do you think your substation network is at currently? If you were to be asked to what level of flood event your generic network is, where are you at now?

Ian Glover: Our substation network has not lost supply through flooding events through recent winters where flood has been an issue. We have deployed those flood defences on some occasions, both temporary and permanent, but as a result have not lost any supply from them.

Q181 Chair: What are the littler substations called then, the ones that do go out?

Ian Glover: They will be smaller, more local substations, primary or local substations. They are owned—

Chair: They do go out, though, don't they?

Ian Glover: They will serve smaller parts of the community or customers. They are not part of our individual network, so—

Q182 Chair: I see. Are you saying that they are operated by individual power suppliers?

Ian Glover: They will be operated by the distribution network operators.

Q183 Chair: Okay, thank you for clarifying that, that is great. Can we turn now to Highways England and Network Rail? I am particularly keen to hear from Mr Kersley and Mr Le Fevre about measures put in place to make the transport network resilient, obviously following on from the Dawlish issues, but we have also had some bridges taken out in Yorkshire. I am not sure who wants to go first on that, maybe Mr Le Fevre?

Ivan Le Fevre: Yes, Ivan Le Fevre, Highways England. I would say that the Highways England network has proved to be reasonably resilient in the face of recent extreme weather events. We have quite a longstanding programme of assessing the performance of our network and identifying flood hotspots, with over 1,200 flood hotspots identified. We have had a programme of moving and addressing those flood hotspots progressively, but with the recent Roads Investment Strategy, with a ring-fenced environment-designated fund, we have £78 million identified for the next five years to accelerate that programme of addressing flood hotspots.

The basis for the resilience of our network I would say is the standards and guidance that we have embedded within the “Design Manual for Roads and Bridges”. That has ensured that when we have constructed the strategic road network, the drainage arrangements for the road have storage capacity sufficient to manage the range of extreme rainfall events we have seen recently. However, there are still vulnerabilities and it is important that we work collaboratively with others to understand and address those. We have a memorandum of understanding with the Environment Agency that has been very helpful in enabling us to do that.

Q184 Chair: Is one of the biggest weaknesses the bridge network?

Ivan Le Fevre: Certainly, on the local road network I can see that many of the bridges have suffered. Where we have bridges going over watercourses, there is an issue around bridge scour of the supporting structure of bridges. Highways England's bridges have proved to be resilient. Unfortunately, that has not been the case for a number of local authority roads, particularly recently, I guess, in Cumbria. Indeed, the local authorities have been designing their network for many years in accordance with the "Design Manual for Roads and Bridges" so there may be a need to look at whether that document adequately meets the needs of local road design.

Q185 Chair: Okay, excellent. Thank you. Mr Kersley?

Tim Kersley: Tim Kersley, Network Rail. It is important to stress that we have a slightly different legacy infrastructure than the modern highways that we have just heard about. For us, investing in our Victorian earthworks, which are the cuttings and the embankments through which the railways pass, the drainage around those assets and maintaining bridges safely over 8,500 watercourses, which is what we operate across the network, are the three significant areas of focus to us in trying to provide more resilient assets. We differentiate between adverse weather and extreme weather. Given the scale of the infrastructure we operate, we are trying to provide more resilient performance against adverse weather; that is to say weather that more normally occurs annually rather than in very extreme events.

The investment activity that we undertake at the moment is analysing weather data, analysing performance information on our infrastructure and targeting based on risk, very much as described by other witnesses here today. We feel that the investment we have allows us to not only maintain that current level of resilience but to, in a targeted way, start to provide progressively more resilience. However, I should stress that this does not allow a step-change to provide protection against the extreme weather events. It might be useful to reflect on the modern equivalent value of the infrastructure upgrade, which, were we to replace it today, would be around £400 billion. We spend £3 billion each year maintaining and renewing what we have. We target that investment very carefully and we try to incrementally improve resilience, but we are not able to provide a step-change in that resilience.

Q186 Peter Heaton-Jones: I wanted to move on to think about the costs of flooding, both in terms of the resilience that needs to be built into infrastructure in the first place and then who bears the costs when something does go wrong. My key question is: who should pay? Who should bear those costs? I very much suspect, depending on whether representatives around the table are from a commercial organisation or a public service organisation, that answer might differ quite markedly. Fortunately, on either side of me I have someone from a commercial organisation and someone from a public service, so there is no better place to start. Ms Harrison, if I can ask you, who pays to ensure that the United Utilities infrastructure is resilient against flooding? Ultimately, does it come down to your customers?

Jo Harrison: Yes, it does. Jo Harrison from United Utilities. Investing in resilience as part of our asset maintenance and our approach to asset strategy is part of what we do on a day-

to-day basis. It is part of our normal maintenance expenditure and, yes, that is funded through the customers and through their bills.

Q187 Peter Heaton-Jones: Ultimately, it is always going to be on Mr and Mrs Smith's bill, an extra cost to ensure that your infrastructure is resilient against flooding?

Jo Harrison: That is the way that all of our investment is delivered. All of our investment is through customer bills.

Q188 Peter Heaton-Jones: When something goes wrong, when flooding does affect a piece of key infrastructure after the event, does a commercial organisation of your size not have any fund available that would be able to undertake the work to put that right or will it ultimately always be added on to bills subsequently?

Jo Harrison: We, like other organisations, are insured. Where we have particular damage caused by one-off events—and the flooding in Cumbria is a good example of that—we have a level of insurance that we will obviously use to rectify the issues. In terms of the long-term planning, what we do on a proactive basis and how we manage our investment going forward, then that is funded by the customers.

Q189 Peter Heaton-Jones: Is the insurance that you have adequate, do you think, to deal with those events?

Jo Harrison: You have to look at it on an incident by incident basis. I am not an expert necessarily in the insurance cover that we have, but my understanding is that the level of cover we have is adequate for the event that we have just experienced. But when you look at a changing climate, the frequency of those events is going to change and obviously the insurance industry will change associated with that in terms of the premiums that they have and the level of insurance and so on.

Q190 Peter Heaton-Jones: Ultimately, the customer will always pay?

Jo Harrison: Yes, in effect.

Q191 Peter Heaton-Jones: Okay. Councillor Sweeney: ultimately, will the council tax payer always pay?

Councillor Sweeney: Hi, Councillor Steve Sweeney from Calderdale. Whether it is a local tax, a national tax or whatever, for the public sector the only sources of real funding that are available are through those processes. What concerns us is particularly about where that division is, which assets are liable on a national scale and which assets are liable on a local scale? I did find it interesting—I had not realised that there were differences on the power issue. We lost 10 substations that caused the recovery and response to the recent flooding in Calderdale to be much more difficult to deliver. In many ways, the communities were isolated because there was no power—there was no power, no telephones and no way of communicating. Even simple things like printing leaflets off—it turns out all your computers are linked by Bluetooth to your printers, so we had to go out

and knock on people's doors and say, "Has anybody got any wires that you can connect these things together?" so we could do stuff on a manual basis.

The actual cost, from our authority we are looking at about £32 million worth of infrastructure damage, which is highways. From a previous conversation on the way in here, I had not realised that our main A road, which is the only low-level route through from east to west from Manchester to Leeds, is our responsibility, not Highways England's, which is a bit of a concern. I always assumed that the A roads were.

Q192 Peter Heaton-Jones: Sorry, let me just explore that. There was a doubt as to who was responsible for maintaining that key bit of infrastructure?

Councillor Sweeney: I am sure that somebody in the council does know that, but it was not something that I was aware of.

Q193 Peter Heaton-Jones: Okay. What impact then does that have on your finances now you realise that you are responsible?

Councillor Sweeney: It depends on how much money we can recover from central government. There is no capacity within the council. We are a very small authority with a very large bill for the infrastructure damage and a very large bill for doing flood defences. We are estimating just the major—and it is a very limited model—of building the two key areas of the engineering approach to managing floods we are about £15 million light that we cannot fund. There are insufficient large commercial or industrial groupings within the area that would be able to contribute in any significant way towards that.

That is only one of the solutions. We are now looking at the whole concept that we have to start with the watershed. Calderdale is both east and west; we have to start with the watershed and how we slow down the water from there, because in every other process, if you only do the engineering solutions, you are speeding the water up, and if you speed the water up, Calderdale will be fine but Wakefield will flood.

Chair: Leeds gets it first.

Councillor Sweeney: Leeds gets it first, thank you. We have to look at that in a much broader concept, a much broader approach, with everybody involved, whether that is the power companies, the water companies who own large amounts of the moorland, the way that the agricultural shelf is managed, or the way that the valleys are managed.

Our business infrastructure has been very badly hit. The Victorians, in their wisdom and for obvious reasons, built all the factories along the river valley and along the canal. Calderdale has a road system and river system, a canal and a railway that just criss-cross all the way down for the 20-mile length. Those industries have been very badly hit. They are mostly SMEs and, as all Governments keep saying, that is where our future lies. Certainly, a year ago, a year and a half ago, Calderdale had the highest number of small business start-ups in Yorkshire. We have some very key industries that are growing, in engineering and electronics. Our concern is about the future of that and how we do that. The other thing that we have an issue with around there is insurance.

Q194 Chair: We are going to come on to that at a later point, thank you. Can I just bring in Mr Lally? One of the things that we were told is that the Government has committed £40 million to assist with repairs to transport links, but we have heard that it will cost £200 million to repair Cumbria's and we have heard £15 million for Calderdale. What is your overview of the amount of money needed and the shortfall or the chances of it being repaired? Have you any ideas on that?

Eamon Lally: Even at this stage it is quite difficult to say what the definitive cost will be for the flooding from December last year and January this year. The figures we are hearing, as you say, are £200 million out of Cumbria. The total impact will be in excess of £500 million across the whole of the affected areas. Some of that obviously was covered by Government funding. Some of it will be economic impact. Some of it will be infrastructural impacts. Some of it there is a means for saying how that will be paid for, but in other instances, there probably is not. Particularly around economic cost, it is quite difficult to know how that can be recovered again. We are seeing a large impact from these events and the amount of money that the Government have been able to put forward is very welcome for those areas that receive it, but it is likely to be short of what is absolutely expected.

Q195 John Mc Nally: It has been very interesting so far and I can understand how complicated an issue this is, especially for small and medium enterprises and so on. Regarding that—I do not know who would come in first, Ms Harrison of United Utilities or local government—the new developments have a formalised process for assessing the flooding impacts on the wider catchment areas and what assumptions you make about the likelihood of extreme flooding events in the future. How do you build all that into the new development areas?

Jo Harrison: At United Utilities, we obviously take a view in terms of long-term planning to understand what the level of growth is in a particular area. We work closely with colleagues in local authorities to understand the spatial plans for the local areas. All water companies are not statutory consultees for the planning process and there is a right to connect for new properties. What we try to do is work with developers and local authorities to encourage the fact that we only want foul drainage to be connected to our sewer systems and we try to encourage surface water to be managed separately, either through sustainable drainage systems or directly into watercourses. From that perspective, our role is to work as closely as we can and ensure that our plans are aligned to those within the local authority areas. As part of our five-yearly cycle of investment planning with Ofwat, we ensure that we have the right infrastructure in place to be able to deal with the growth that is identified within local areas.

Q196 John Mc Nally: It is quite reassuring to hear that people have some joined-up thinking around here. Following on from yourself there, Mr Lally, I believe there was a £200 million shortfall in flood protection in the last Parliament. Do you think there is currently enough money available to adequately protect infrastructure from future flooding? I probably anticipate the answer.

Eamon Lally: I think the answer to that is no. As we have said, the funding that we receive comes largely through the Environment Agency or through local taxpayers. We recognise that there is a priority process that needs to take place around how that money is used. What we would probably say, as a local government sector, is that we should be

much more involved in that prioritisation process. Once the broad priorities are made, there should be a much greater degree of local decision making in how that money is spent and the way in which that money can be spent and combined with other sources of funding, so that local knowledge is brought to bear on how that money is used. The answer to your first question is no, there is not enough money, but perhaps we could be spending the money we have more effectively.

Q197 John Mc Nally: You mentioned that you are going to set a list of priorities and identify local decision makers involved in that. Can you maybe give me a little idea who you think would be in that decision-making process?

Eamon Lally: We think the decision-making process should have a strong degree of democratic oversight. It should be local councillors who are involved in that decision-making process but in partnership with local businesses. It is not on a council by council basis. We think the geography will depend on the circumstances. The approach to managing flood risk ought to be taken on a catchment area approach and we would like to see councils working together but also with local businesses and their communities to ensure that the areas are protected as effectively as they can be within the resources that are available.

Chair: Thank you very much indeed. Peter, we are going to move on now to the planning system.

Q198 Peter Heaton-Jones: Yes, I wanted to move on to the planning system in its global scale—not just local planning authorities but the NPPF and the planning system in its wider sense. I am sure I and other colleagues get emails all the time from our residents saying, “Why do you allow building on flood plains?” Mr Ellis, why do we allow building on flood plains—or do we?

Hugh Ellis: The specific response is that the Environment Agency would say their advice is normally taken. But the wider point is, from the TCPA’s perspective, there is some very serious dysfunction in the way that we are planning for climate change. The difficulty is it runs right through the spatial scales, right through from the way we organise local planning of sustainable urban drainage right up to the fact that as a nation we do not have a spatial plan to manage the risks we are confronted with. One of our difficulties is that we are not learning some of the European lessons about how to do that. We are also, I don’t think, necessarily able to do the one thing that is crucial in relation to the climate science, which is to plan on proper timescales. The average local plan, which is the only foundation for statutory planning that we have, realistically is planning for three to five years, with maybe a 15-year time horizon. It is absolutely imperative we plan for 50 to 100 years and perfectly sensible to do so; certainly they do that in the Netherlands. The infrastructure investment plans that are represented around this table could benefit enormously in terms of economic efficiency if we mapped together as a Government policy all of the opportunities that infrastructure produces and the constraints that climate change applies.

I will try to be very brief but the problems do run right through the system. Just a very simple one: for example, in relation to York and Cumbria, can planning control major agricultural land use change in upland areas that has a direct effect on flooding water absorption rates? The answer is no, it cannot. Does local planning reflect catchment area

planning at the right spatial scale? No, it does not. The summary would be—because planning is a vitally important solution—that we are planning for the wrong geography with the wrong system over the wrong timescales and, I am increasingly seriously worried, with the wrong science.

I give you one concrete example of that, because this can get very broad. If we were to ask ourselves honestly as professionals whether or not we are planning for the Environment Agency allowances that were published last week, which is 1.24 metres of sea-level rise on our East Anglian coast by the end of the century, from our knowledge of local plans I know that virtually no local plans are taking those implications fully on board. If we think about that level of sea-level rise we are talking about a transformation to the nation—a transformation in the way that we flood defend to make sure ports are secure over the long term, or a transformation in the way we deal with other issues, which are too politically difficult even to talk about, such as which parts of the country we defend.

Finally, on top of that—because the issues are so serious and so important that they require an entirely new departmental response at national level—we also have critical assets like agricultural land. If you imagine a world in 2080 of much greater climate insecurity, food production becomes very critical. Forty per cent of our grade 1 agricultural land is at or below sea level around the Wash, yet if you look at the climate change allowances from the Environment Agency, the kind of emphasis they put on flood defence is clearly and quite rightly focused on defending people and their homes, but our agricultural land seems like a rather important asset. There are all sorts of issues around the deployment of green infrastructure. What that means is basically that this investigation needs to get to the heart of a new system for planning for climate change, which I know is not an attractive proposition but if we want to build resilience we do need it.

Q199 Peter Heaton-Jones: That is very useful. Because that is such a major piece of work, presumably you would suggest that that has to be driven by central government?

Hugh Ellis: I think that it does, but I say that with reluctance in a way because immediately people then say, “You are taking a Stalinist approach to an enormous problem,” and that is certainly not the case. In our minds, what we are trying to do is to take a very rational view that some issues represent themselves at big geographical scales—that is not a political issue so much as a rational one—and that you need structures that reflect that rational, functional geography of England. As a nation, compared to the rest of Europe we are not very good with maps, ironically enough. We have forgotten that skill set. You want to be able to represent those issues at the right spatial scale. That does require important new Government responsibilities. There are also very different fragmented responsibilities on climate change in central government, so this is partly an issue of co-ordination.

The great lesson is this: I went to my first planning and climate meeting 23 years ago, and in the time since our progress has been relatively slow. The Royal Commission on Environmental Pollution—which I think is an asset we cannot do without, although we have had to—published a report in 2002 that said we need a new comprehensive form of planning to deal with climate change that dealt with the issue of cross-catchment area planning. I do think that is worth returning to. Certainly, one of the recommendations

should be you need a single body capable of making recommendations as powerful as that, although since the recommendations were not taken up perhaps that is not a good example.

Q200 Peter Heaton-Jones: Can I ask one supplementary to Councillor Sweeney? What Mr Ellis says is absolutely understandable about long-term planning. You are talking about a 50-100 years planning timeframe, but in the next week, six weeks, six months, people are going to apply to build houses on flood plains and they are going to apply to their local planning authorities. Councillor Sweeney, what can we do in the short term to ensure that in the absence of the big scale events that Mr Ellis is talking about local planning authorities do not get it wrong?

Councillor Sweeney: I would go with what Mr Ellis is saying in that I do not think that the local authorities have the power under the existing legislation to overrule a rather generalised decision that tends to be made by the Environment Agency. I can think of a particular example in my ward where properties were flooded on Boxing Day and we have not done the studies yet but all of the local people feel that that was a direct result of new properties that were built between where they live and the canal and the river. Those buildings were approved. They were sent up, as usual, to the Environment Agency for comment. They were designed to be flood resistant, so they were designed to sit higher on the land than would have normally happened. That seems to have resulted in the floodwater, instead of draining away into the ground the way it would have done before the houses were built, going across the land and flooding quite a number of streets in a particularly vulnerable area that has been flooded before.

I am not sure that we can do a great deal about it unless there is more direction given by central government on what we can and cannot do. There is a tendency in local government, as in all government, to be risk averse, and one of the risks you are averse to is refusing planning on grounds that you feel may be overruled because it incurs quite a lot of expense. Personally, I would rather go for taking the risk, but I can understand why lots of authorities do not and why lots of councillors sitting on the planning committee will not.

Peter Heaton-Jones: Interesting. Thank you.

Chair: Thank you. We are going to move on to the issue of flood protection and the environment.

Q201 Caroline Lucas: We have been talking about the Environment Agency throughout the afternoon. Do you think the Environment Agency has struck the right balance between flood protection and prevention? Is there an inherent trade-off between protecting people and the environment? My question is an open one to whomever wants to jump in there.

Chair: If you would like to indicate, I will call you in order. Yes, Hugh.

Hugh Ellis: I do not think that there has to be, but that would require a level of design and build in what we produce in the built environment that would be an extraordinary step-change. Again, people are perfectly capable of delivering this in other parts of the world and in other parts of Europe. An example of that would be that if you really want to overcome the problem you have identified, you need effective implementation of

sustainable urban drainage systems, but their implementation was changed fundamentally and now they have to pass through the viability test in local plan-making before adoption. That is a test that says that if a developer feels that that would have an undue impact on the profitability of landowners and developers, then plainly that comes into question. The difficulty about that is the economics, because the benefits of sustainable urban drainage are long term to end users but the costs, of course, fall on developers. We surely must be more intelligent than this, because these long-term benefits for climate measures mean that we are going to be saving insurance costs and, in fact, people's basic wellbeing going into the future.

I could take other examples on green infrastructure: for example, perceived to be slightly soft, guidance in national planning quite equivocal, but in fact green infrastructure in Europe can take 2° off an urban heat island during a heat event if it is deployed comprehensively. It is actually quite cheap to deploy; the Netherlands has shown that. You would need an entirely new approach to planning, and that would require a refocusing of the National Planning Policy Framework, which contains some good words but is not being implemented particularly on that issue.

One of my great regrets is that the review of the National Planning Policy Framework currently just ended did not include, despite what happened over the last three months, any content on climate change, either adaptation or mitigation. That was an enormous opportunity. That is crucial. The NPPF needs to be reviewed in order to see whether or not it can deliver those multiple benefits.

Q202 Caroline Lucas: That is really helpful. Just on the sustainable urban drainage example that you gave, how would you change the incentive and the finance around that in such a way as to make the better decisions become the ones that are also more financially viable, too?

Hugh Ellis: It is difficult, isn't it? Both on mitigation and deployment of renewable energy and building scale and on adaptation, these are potential economic benefits, are they not? That is why we are doing them in public policy, and yet they have accrued on the wrong side of the accounting sheet in the development model. I think that means that we need to find different ways of delivering them.

In relation to sustainable urban drainage, I am always struck very much by the example of the Clean Air Act. When we see an environmental benefit that has a long-term benefit to people in the economy, one of the ways of doing it is simply to regulate. Within two years, the Clean Air Act solved an enormous public policy problem in the early 1950s. One of the issues surely should be that you simply say that all new housing development should be accompanied by comprehensive sustainable urban drainage. There are some cases where that is not appropriate, but in most cases there are. Then, of course, the market will adjust, so long as it is an even floor, because the costs are passed as we described. Do you want to pay money? Do your customers want to pay money to pay your insurance bills, or do they want to pay money for a better built environment? That does require some strategic decisions.

Chair: Thank you. That is very helpful. Ms Harrison, you wanted to come in on the subject, I imagine.

Jo Harrison: It was really about the join-up and the framework of policy, coming back to Caroline's question around flood protection and prevention. I sit on the North West Regional Flood and Coastal Committee, and that is the forum at which, through the Flood and Water Management Act, we look at all the flood prevention mechanisms that we need to implement within the north-west area. From my perspective, it feels very much like different risk management authorities bringing together their own issues and identifying their own investment needs. You have the Environment Agency, which is very focused on main river, you have local authorities focused on the urban environment, and ourselves looking at the sewer network. What does not happen is true ownership of the catchment in the whole holistic context of that. It is coming back to the point around how we ensure that we have a joined-up, holistic view of what happens within that catchment, with proper management and understanding of what is happening in the upland areas and in the rural spaces. Until you get that—until you get somebody leading on that and making a difference rather than just looking at the sum of the parts—we will not progress and we will not make a step-change.

Q203 Caroline Lucas: That was going to be one of my further questions, in fact, about that whole catchment system approach and having some kind of catchment system operator, a focal point that could do some of that co-ordination. Is that something that you would support?

Jo Harrison: Yes. That is something that has been trialled in Cumbria following the floods, and it will be interesting to see how that develops. It is making sure that you get the right accountability and that we do not create something new that sits alongside the established hierarchy with the local flood authority—that we are not duplicating but we are improving what already exists.

Q204 Caroline Lucas: Does anyone else want to respond to those two points you have had from Mr Ellis and Ms Harrison, either in support or not, just to get a sense of the feeling in the room? I think both of the things you have said are quite strong, and it would be really helpful to know if that is supported.

Ian Glover: Just coming back to some of the earlier discussion, I think there is an important balance here for us. We have heard of the importance of energy, particularly electricity, in people's response and subsequent management to flood events, so there needs to be that balance between protection of the establishment, protection on sites. For organisations like ours, that clearly has to be one of our prime responsibilities because of the impacts of not having power. In terms of helping us manage that, if we have demountable or temporary flood solutions, then the amount of warning time or the notice that we get of flood events is severely going to be altered by development on or around flood plains around the solution—faster flows and so on, and subsequently getting back to instigate any repairs. Saturated ground conditions are not going to help any reinstatement or recovery works as well. Integration and co-ordination of that broader scale approach I think would be very helpful.

We have worked with people like the Environment Agency in particular areas and they have been very productive, but one of the complications has been differences in expectations of targeted resilience levels. What might in the landscape serve one particular

set of infrastructure or asset area may not be appropriate for the others, so there is another balancing act there as well.

Chair: Thank you. That is very helpful. John, did you want to come in with your sustainable drainage question about lead local flood authorities, particularly to the LGA?

John Mc Nally: I am actually having to go for a train now, so I am afraid I would probably be in the middle of the question and have to go. I do apologise, Mary, but I am sure Caroline will be able to fill in for me. I am sorry. Thank you.

Chair: Okay. Very quickly, because once you leave we are going to have to close the meeting.

Q205 Caroline Lucas: I just wanted to ask a question. Dieter Helm has given us some evidence earlier on in our proceedings, and one of his suggestions was that the Environment Agency should be broken up so that one organisation can focus solely on flood risk management. I would just be very interested in people's responses to that as a proposal.

Hugh Ellis: I will give a quick response. Climate change is much, much more than flood risk, and adaptation is a much bigger issue. You certainly need some very strong leadership around the issue, and the Environment Agency might be the thing to evolve, I would suggest, rather than break up. The issue is about whether we fragment anything more. We are moving into fairly desperate times, but adaptation must be seen as a complete narrative. It is also about temperature that nobody wants to talk about. We must make sure that that is an integrated function or idea in central government.

Jo Harrison: My view would be that it is absolutely critical that we think about catchments and we think about water quantity and we think about water quality together, because so many of the issues are completely interrelated. To divorce the responsibility of the Environment Agency and separate the two accountabilities would create a much more difficult scenario.

Q206 Chair: Thank you very much indeed. We just have one final question. There is a strategic review going on. If you could have one thing that you would like to come out of that, can you quickly go around the table and just tell us one thing you would like to come out of that Government strategic review as a way of closing our meeting? This is putting everyone on the spot, so maybe if you want to indicate. It is like being on "Question Time" and you have to do the joke question. It is like, "Please let me be fourth." Mr Lally, would you like to start?

Eamon Lally: I will start. Hopefully, it is not a joke answer, but I think we want a greater degree of localism in decision making around the application of flood defences.

Chair: Thank you very much. Mr Woodroffe?

Chris Woodroffe: A real focus on the opportunities that partnership brings. Would you rather have Gatwick invest £1 million onsite to protect itself or £1 million as part of a group to do a larger scheme that benefits a larger group of people?

Chair: Excellent. Thank you. Mr Kersley?

Tim Kersley: We have developed a number of project solutions with the Environment Agency. As ever, compatible funding horizons and timelines is a challenge and, therefore, anything that can be done to give greater time horizons to particularly the Environment Agency's funds as well as our own would be helpful.

Chair: Excellent. Thank you. Mr Ellis?

Hugh Ellis: A national spatial plan for climate change with a 50 and 100-year time horizon.

Chair: Nothing big then. Ms Harrison?

Jo Harrison: Defined accountability within a catchment for flooding and water quality and water quantity together.

Chair: Excellent. Thank you. Councillor Sweeney?

Councillor Sweeney: A quick one would be to change the way that they do grant-in-aid in terms of building and paying for flood defences. I think it is inappropriate and no longer suits the purpose.

Q207 Chair: What would you like to see instead?

Councillor Sweeney: I would like to see the whole catchment area rather than what is happening at the moment, which is building a defence system around whichever properties get flooded. It is ineffectual and has no long-term future.

Q208 Chair: Excellent. Mr Glover?

Ian Glover: Two things, if I may.

Chair: This is where the audience rebels.

Ian Glover: First, a consistent picture of resilience levels that organisations are targeting, particularly among other critical national infrastructure, I think would be very helpful. In terms of a strategic approach to resilience, there is probably an understanding or a setting out of some kind of hierarchy of dependence, so in terms of resilience and response to it, who are some of the key operators, who are the organisations that have that important cascade of impact, and how they focus the resilience on that and think about how it would fit underneath, so more of a strategic approach that way.

Chair: Brilliant. Thank you. Mr Jeynes?

Tom Jeynes: In terms of the flood management and flood defence projects that we have worked on, particularly in partnership with the Environment Agency, we would say that we view ports definitely as part of a community, and that can be on a local, a regional and, of course, a national basis. We have been very happy; we are very pleased to be working on these sorts of partnership solutions to flood defence for ports, often incorporating some quite innovative design as well because of the difficulty of ports having to be based in coastal locations. Out of the review, we would like to take that a step further. We would like specific consideration of ports as critical national pieces of infrastructure and the role that ports play in the balance of trade.

Chair: Great. Thank you very much. Finally, Mr Le Fevre?

Ivan Le Fevre: I would like to see a more collaborative approach in the way infrastructure operators both develop or increase the resilience of their networks and in developing the capacity to address extreme events and put in place restitution measures, so perhaps enabled by central government with the support of the Environment Agency, but a more collaborative approach across infrastructure operators.

Chair: Brilliant. Thank you all very much indeed for your time.