Public Accounts Committee

Oral evidence: Strategic Flood Risk Management: progress review, HC 759

Monday 25 January 2016

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Members present: Meg Hillier (Chair); Mr Richard Bacon; Deidre Brock; Caroline Flint; David Mowat; John Pugh; Mrs Anne-Marie Trevelyan

Sir Amyas Morse, Comptroller and Auditor General, National Audit Office; Adrian Jenner, Director of Parliamentary Relations, National Audit Office; Simon Helps, Director Environment, Food and Rural Affairs Value for Money, National Audit Office; and Marius Gallaher, Alternate Treasury Officer of Accounts, were in attendance.

Witnesses: Susan Acland-Hood, Her Majesty's Treasury Director of Enterprise and Growth, Sir James Bevan, Chief Executive, Environment Agency, Clare Moriarty, Permanent Secretary, Department for Environment, Food and Rural Affairs and David Rooke, Deputy Chief Executive, Environment Agency, gave evidence.

Chair: Welcome to the Committee. We are having a look at flood risk management. This is a bit of recall, because we were cut short, Clare Moriarty, and I appreciate your appearing before us—I know you are busy with a number of Select Committee sessions on this very important issue of flooding, unsurprisingly. I am pleased to welcome Susan Acland-Hood from the Treasury, Clare Moriarty, the permanent secretary at the Department for Environment, Food and Rural Affairs, Sir James Bevan, chief executive of the Environment Agency and the deputy chief executive of the Environment Agency, David Rooke.

I think you know why you are here. We are going to be quite quick in our questioning and we hope to get quick answers back. We have had devastating flooding in England, particularly over the last couple of months from Storms Desmond, Eva and Frank, and of course, Storm Gertrude is on her way, so there are a lot of challenges. We last looked at this properly as a Committee and produced a Report in March last year—nearly a year ago. We found then that the Environment

Agency did a good job of improving cost-effectiveness and prioritising spend rationally, but overall funding fell during the last Parliament and that is one of our concerns. We feel that that presented a risk to the sustainability of flood protection levels—money was spent well, but there was not enough of it would, I suppose, be a fair summary of our position. We want to probe the issues of maintenance and capital spend on improvements, as well as looking at insurance issues around Flood Re. I will ask Anne Marie-Trevelyan to kick off.

Q1 Mrs Trevelyan: Ms Moriarty, can you confirm that all the flood defences in place that were affected by the storms and flooding across the north of England were fully maintained up to December?

Clare Moriarty: I will defer to my colleagues to provide more detailed information, but yes, these defences were all being actively maintained by the Environment Agency.

Q2 Mrs Trevelyan: Would that include those over which the Environment Agency does not have any direct maintenance controls? Do you know the state of those as well?

Sir James Bevan: We have a target that 97% of our high-importance assets will be maintained in the necessary state—

Chair: Sorry, Sir James. Could you speak up a little?

Sir James Bevan: Yes, we have a target that 97% of our high-impact assets will be maintained in the necessary state. Before the December floods, we were at 96% of those assets, which is good, but we want to do better. After the floods, there was a lot of damage. We had to do inspections: we have inspected 15,000 assets already and at least 700 are damaged, so it will take us a while to get those back up to the necessary state. I do not know whether David wants to add anything on the assets that we do not directly control.

David Rooke: Roughly 55% are Environment Agency assets and something like 45% are owned by third parties. This is included in the statistics that Sir James has just outlined. When we are looking at the condition of those assets, we inspect all assets, not just our own. The target is 97% of assets that are in what we call high-consequence systems with the greatest risks to people and property.

Q3 Mrs Trevelyan: When we had the chance to question you in December, Ms Moriarty, you told us briefly that only one flood defence had failed, and that was in Lancashire. There has been more impact flooding since then and I wonder whether you have made an assessment of how many defences failed across the whole of the north.

Clare Moriarty: There were some flood defences that failed—at Croston and St Michael's in Lancashire, and the Foss barrier had to be lifted because the pumps were in danger of flooding. Those were the key ones where we experienced failure.

David Rooke: We had what we call a breach in the earth embankment at Croston in Lancashire and at St Michael’s, again in Lancashire. We have had damage to a number of defences. We have picked up so far that about 750 assets have been damaged in some way or other. We have a repair and recovery programme already under way and the Government have provided funding this year to enable us to do emergency repairs. We completed emergency repairs at St Michael’s and at Croston over the weekend, so we are ready for the further rain that is forecast this week—on Tuesday and Wednesday and again on Friday. The Foss barrier is operational, and during the floods, we brought in mobile generators using a military helicopter, so the Foss barrier is functioning and is ready to be operated.

Sir James Bevan: What is striking is that despite the fact that some did fail, most did not—despite the fact that in December there were record amounts of rain and record highs over rivers. Although over 16,000 properties were regrettably flooded in December, probably another 20,000 did not flood as a result of the structures withstanding something that was often over their design limits.

Q4 Mrs Trevelyan: Indeed. Of those assets that were damaged—I have seen first-hand that you are all out working hard to fix them—was that damage due to an inability to prepare for that level of water? Or was it that, over the long term, maintenance was not adequate for water flows that you could have anticipated?

David Rooke: From what we know so far, it is because we had extreme flood levels, which were above the design of the scheme. Where we have had breaches of defences—there were some in Northumberland as well, on the River Tyne—there were earthen embankments, the water overtopped them and washed out the back of the embankment, which caused the failure. It was water in excess of the design of the defence, rather than the defence itself failing with a level of water against it that it was designed to protect against.

Q5 Mrs Trevelyan: That is helpful, thank you. Local authority flood strategies are critical going forwards. Do you feel they are well established across the board?

Clare Moriarty: There is a requirement on lead local flood authorities to develop flood strategies and the majority of them have now done so. We have been working closely with them to make sure that the remaining—

Q6 Mrs Trevelyan: When you say a majority, is that 55% or 95%?

Clare Moriarty: The last time the data were collected was March 2015, and I think 102 had at that stage published their strategies and about 50 had not. We understand that more will have in the meantime and Minister Stewart, the floods Minister, wrote to all the remaining local authorities in November to encourage them to make progress with a view to having all the strategies published by the end of March 2016.

Q7 John Pugh: On that point, our last Report said that something like 16% of local authorities had a flood strategy in place. What is the percentage now?

Clare Moriarty: The answer is that the Environment Agency will be doing a further data collection exercise shortly and that is the point at which we will know, because the data we have got is—

Q8 John Pugh: But you are saying that it is a lot more than 16%.

Clare Moriarty: Yes.

David Rooke: In March 2015 it was 39%, I think.

Q9 Mrs Trevelyan: Can you tell us, and if not, will you write to us, if strategies were in place for all the areas that were affected by the flooding over the Christmas period?

Clare Moriarty: I would need to write to you. I do not have a list of exactly—

Q10 Mrs Trevelyan: Because obviously, as those areas continue to be hit, it is important that you provide them with more support to get those flood strategies right. This is going to be a building problem and if they are—pardon the pun—drowning under the pressure of trying to keep themselves functional, they are not going to be looking forwards in the way that they need to be. That would be helpful to know.

Clare Moriarty: Yes, and we are working with DCLG to make sure that the right support is in place for those local authorities. We have also been doing a review of how local flood resilience works, but I will certainly make sure we get you that information.

Q11 Mrs Trevelyan: Thank you. With these plans, is there a template you ask authorities to work from, or are they free to develop a plan or strategy that they feel is right for their area? There is a lot of conversation at the moment about the conflict between catchment-based planning and the drive that EU directives over the past 10 or 15 years have given on environmental matters, perhaps above people and property, which seems to create a conflict for a local authority trying to design a strategy that would work under flood conditions.

Clare Moriarty: In terms of whether there is a template, I am not aware that there is one. There is a responsibility placed by the 2010 Act on the lead local flood authorities to develop a strategy which suits their local circumstances, and obviously those will be very different in different parts of the country. One of the things we are looking at more generally is how we effectively bring together the kinds of upland measures that can be brought into place to protect people from floods with the hard flood defences that the Environment Agency is particularly concerned with and also property level resilience methods. I would not see it as something that is in conflict; it is about making sure that we are thinking about all the ways in which we manage water, particularly in terms of flooding, to protect people's homes and properties.

Q12 Mrs Trevelyan: So will that require the flood management strategies that now exist and that you have presumably already approved—that 65% of them—to look again at whether their strategy more widely incorporates that catchment-based thinking, not just "We need more concrete along the river through our town", which is not really the only solution?

Clare Moriarty: As far as I know, we do not approve the strategies. It is the responsibility of those lead local flood authorities to make sure that they have their own strategies. One of the pieces of work kicked off following the first flooding in Storm Desmond was the national flood resilience review, which looks at these broad questions about whether we have the modelling right, stress-testing the resilience of our assets and the infrastructure of our settlements and making sure that we understand what we can do in terms of both temporary and permanent defences. I would expect the lead local flood authorities to be particularly interested in that, so it can inform their continuing thinking. The strategies are not written once and then put in a drawer and forgotten about; it is important that they are constantly revisited.

Q13 John Pugh: On that narrow point about the strategies, you say you do not approve strategies. Who takes an overview of whether a strategy is likely to work in current circumstances? Suppose a strategy is submitted which is not actually going to be effectual. Who then says it is ineffectual?

David Rooke: There is a national strategy, which Parliament approved in July 2011. We helped to prepare it, Ministers supported it and Parliament approved it. That sets the overall strategic framework within which local strategies can be developed by lead local flood authorities. We have also produced flood risk management plans, in consultation with lead local flood authorities. We expect to publish those shortly. The flood risk management plan is the means by which the national strategy, local strategies and local plans are all brought together in terms of how best to manage flood risk—

Q14 John Pugh: What I am really asking is this. If you have a case where a local authority, maybe because of cash constraints or whatever, is simply not doing enough, and you can see from your point of view that it is not enough, who then cries foul and says, "This strategy is simply not good, and it needs to be uprated. The local authority needs to spend more money"?

David Rooke: Under the Flood and Water Management Act 2010, we were given a strategic overview of all sources of flooding, so we have the power to look at the strategies being produced by lead local flood authorities. In discussions with them, we incorporate those within our flood risk management plan. If we are not happy with them, there is further dialogue with the lead local flood authority. If necessary, we can then escalate to the Department.

Q15 Mrs Trevelyan: So we assume, as Mr Pugh says, that the local authority is able to look at this. We assume that they are not encumbered by the balance of direction given in the EU water directive and other environmental views, which perhaps do not support thinking more widely about how to slow down the water as it comes through the built-up areas in any particular catchment area. But if you are only managing 55% of the actual flood asset—mostly the hard physical ones—and the rest of it is under private land ownership, managed by drainage boards or even local authority land, and if there is no overarching oversight to say, "They've done a good job, and this is likely to work," how do we know and how can our constituents feel comfortable that there is a thought process incorporating all those assets and not simply saying in a reactive sense, "It didn't work, did it?"?

That was the case in Morpeth in 2008. We had terrible floods, and we have great big concrete walls, but we have also thought it through and built a lake upstream. That came from some really intelligent thinking, but it might not happen everywhere. It has been quite a complex logistical and environmental programme, but it was deemed important enough to conquer some of the challenges and slow the water going through Morpeth. So far, it has worked.

Sir James Bevan: I regard it as one of the tasks of our area managers in each of the 16 areas that we run to build coalitions, not just with the local authorities but with businesses, water companies, local communities, farmers and all those constituents who can help solve these problems in a holistic way. As you say, I think everybody—all the local authorities that I have talked to in the last seven weeks—realise that upstream catchment management and slowing the flow is a core part of what we do. The concrete in the middle—the defences—are important but not necessarily always the most important. The scheme for concrete, if it is concrete, must be agreed locally with all the stakeholders.

I think everyone also realises that the third component is resilience after a flood because protection can never be 100%. I regard it as the job of our area managers to make sure when dealing with each of those three components that they bring together all the local interests to arrive at solutions that work for everyone.

Q16 David Mowat: Can I ask you a question about your area managers and whether they have executive authority in a tactical sense when something happens? My constituency flooded because the Manchester ship canal was used to get water out of Manchester. That may have been the right decision to minimise the total amount of damage, but someone made the decision to open the sluice gates at Irlam in Manchester knowing that they could not get the water out at the other end of Warrington. Bits of Warrington flooded, but not houses. Would whoever made that decision have been an area manager instructing the ship canal to do that?

Sir James Bevan: Depending on the circumstance, in a flooding crisis there is a strategic co-ordination group headed by a gold commander, who is usually the chief of the police area, which we would be part of. Outside a crisis we do give a lot—

Q17 David Mowat: It was a crisis. It was on Boxing Day night. The point I am making is that that executive power exists. The gold commander could tell Peel, in this case, to open the sluice gates in Manchester knowing that Warrington might flood.

Sir James Bevan: There would be a collective discussion, but we give a lot of responsibility, rightly I think, to our individual managers. An example is the Foss barrier where the individual manager took the decision to open the barrier, which was the right decision. We have the same with the Thames barrier where one of our local managers will take the decision against a set of principles that we have agreed beforehand whether to close the barrier. The cardinal principle for all our decision making for all our managers is to protect lives.

Q18 David Mowat: Is there a formal process by which those decisions are investigated subsequently to make sure that no errors were made?

Sir James Bevan: If need be, we will investigate decisions.

Q19 Mrs Trevelyan: Looking forward in terms of sustainability and making sure we try to reduce the impact further, am I right in thinking that for the flood defences for which the Environment Agency is responsible you have about £170 million a year as a maintenance budget? Is that about right?

Sir James Bevan: Yes.

Q20 Mrs Trevelyan: Is that enough to keep on top of those assets so that they will not be allowed to degenerate and there will not be a value-for-money problem in the longer term?

Sir James Bevan: It is very good that the Government have made a commitment not just to the £2.3 billion of capital investment for the next five or six years, but to maintain in real terms the value of that maintenance budget over the lifetime of this Parliament. As you say, it is £171 million and in this financial year the Government will maintain that value for the next four years. That gives us some stability and an ability to plan, which we welcome. Again, it is not just the Environment Agency that is maintaining all these assets. We are working with internal drainage boards and other landowners. Together that gives us what we need to maintain the assets in the condition we want.

Q21 Mrs Trevelyan: So the £170 million is for you to maintain the assets you are responsible for, and landowners and drainage boards are responsible for funding the maintenance of what they are responsible for. You don’t support them financially at all. That is their problem. So how do you know that they are maintaining as they should? At the end of the day, you have to manage the water flows.

Sir James Bevan: Well, we work very closely with them. Again, a function of our area managers is to make sure that within their area we have an integrated approach to the way we maintain and look after our assets.

David Rooke: I think it comes back to the point we made earlier about 97% of our assets being in the target condition for high consequence systems. We were at 96% and I think it is 96% or 95% collectively between our assets and third party assets. That is the ultimate test.

Q22 Mrs Trevelyan: But they are spending their money, not your £170 million.

David Rooke: They are spending their money.

Q23 Mrs Trevelyan: So there is always a risk, which you don't have any control over, that they may not maintain because of other budgetary constraints or choices they might make.

David Rooke: There is that risk but from the surveys and inspections we have carried out, the condition of their assets is very similar to that of our own assets.

Q24 Mrs Trevelyan: So you are comfortable that landowners and so on are maintaining assets and that, bar the disasters you hear about when someone moves something because they thought it might be a good idea without checking first, those sort of disasters are not likely to happen. With the £2.3 billion of new capital investment—which I wholly welcome, and for which I am sure you have a long list of things to prioritise and work out what to do first—do you feel you will have adequate maintenance funding going forward? Are you going to have to stretch that £170 million further, to maintain a whole new wave of physical investment? How is that going to work?

Sir James Bevan: As I say, it is good that we have got certainty over both capital and maintenance spending for the next four years. We work very closely with others who are responsible for maintaining different bits of flood defence capacity. We use some of our capital funding to ensure that existing assets are in the right condition—I think that is right, David. Together that gives us a good settlement to go forward.

Q25 Mrs Trevelyan: And is it a good system, or would it be better to have a whole-life funding framework that you could manage as you needed to? It is not a very predictable life of assets—where there has been a lot of flooding, the chances are that they are going to be more worn than where it hasn't flooded. Would it not be better to have a whole-life funding programme that you could manage as you needed to, rather than being fixed in these capital and revenue frameworks?

Clare Moriarty: That is a question that we are actively debating at the moment. Quite a lot of work has been done by the Environment Agency to understand what the right balance is between replacement and maintenance. We are comfortable, certainly within the period of the settlement we have got at the moment, that the amount we have got for maintenance will allow us to maintain the assets we have and use them sensibly. Over a longer period, it is certainly worth asking the question what is the best whole-life cost solution for these individual assets. Is there more that we could be spending on maintenance that would have an impact on when we need to replace, and therefore on the amount and profile of capital spending? That is a conversation that we are interested to pursue.

Q26 Chair: We are quite interested, too. Susan Acland-Hood, you must have something to say from the Treasury about the balance between capital and maintenance, in response to Anne-Marie Trevelyan's point.

Susan Acland-Hood: Yes. I agree very strongly with the permanent secretary that we have worked very closely together with the Department and the agency to make sure we have got the balance right for this spending review period. As you would expect, we thought quite carefully about the capital and maintenance balance over that period.

Particularly looking further forward, over time, we are very happy to consider whether it would be worth our continuing to explore whether there would be additional benefits from taking a TotEx approach. But we would need to be convinced that there is a really good case for it. There is a reason why, in overall Government financing, we make this distinction between revenue and capital spending—to try to make sure that money that is set aside for long-term investment in capital projects does not get routinely diverted into everyday resource spending. We would need to understand that there was a really good case for breaking away from that principle. We are certainly happy to explore that and will do that work.

Q27 Mrs Trevelyan: The Secretary of State said recently that there was going to be a further 420,000 acres of farmland protected, which, obviously, coming from Northumberland, I found an interesting statement. In Northumberland and across the north, we have found that while flood-relief funding, quite rightly, is available very quickly for those whose properties are damaged, in north Northumberland—for instance, the Till valley—we have had a series of impacts of three major storms. By the third one the land was up to here in water. After the first one, it was all right; the drainage was still working. The Till catchment is designed to take water into the Tweed, but can only sustain it for so long. Exactly what is the Secretary of State hoping to do, and how will that work, if the Government are committing to protecting farmland from the impact of serious amounts of water?

Clare Moriarty: The £2.3 billion investment programme has quite clear objectives in terms of reducing the flood risk for 300,000 homes and 470,000 hectares of farmland. We have to keep saying that we can't reduce the risk entirely; we can't stop things flooding. But the objective is to move both properties and farmland from higher-risk categories to lower-risk categories. The Environment Agency has a pretty detailed and well developed list of the schemes that are going to deliver that, so it is not just hope and expectation, but linked to individual schemes.

Q28 Mrs Trevelyan: Is that particular farmland—are there particular areas of the country in that 420,000?

David Rooke: It is all round the country. It is embedded in the six-year programme. We took a recent look, as we come to the end of the first year of that six-year programme, and we are increasingly confident we can deliver not just the 300,000 households that are protected but the farmland and the wider benefits that will bring.

Q29 Mrs Trevelyan: That's encouraging. Lastly, on Flood Re, which kicks in on 1 April. I have had a lot of correspondence from people with small businesses—and I am told there are also people in leasehold properties with corporate owners of freeholds—who are left out of this flooding support framework and are very unlikely to be able to get insurance. I am concerned that we have not thought through how we can support the small business community that will see vast bills, with 25% claim requests on bills of £100,000. They cannot afford those. Are we going to look at how Flood Re can extend to support that group?

Clare Moriarty: The Flood Re scheme was set up specifically to deal with households. That is the construct and it works on the basis of council tax bands. At the time Flood Re was set up, it was not extended to businesses, partly because you quite quickly get into issues about state aid and taxpayer funding for businesses.

It is a more complex environment because, effectively, the Flood Re system involves people at lower risk of flooding subsidising the insurance of people at higher risk of flooding. That is a much more complicated concept in a commercial environment than in that of home owners. Generally speaking, businesses are more likely to use brokers and to have bespoke insurance.

At the moment we are aware of some anecdotal reports of people having difficulty gaining insurance but we have not yet seen evidence of a sustained problem. However, it clearly is something that has come up quite a lot in the context of the recent floods. We will be talking to the insurance industry, the ABI and others to ensure we understand what the issues are for businesses and whether there is more that needs to be done.

Q30 Mrs Trevelyan: Can you give them some assurance that you will do more than look at it but try to find a solution for them with the industry? I know Flood Re took a long time to negotiate but we cannot have our small businesses, which are the lifeblood of these flooded small communities, hung out to dry. That's no good at all.

Clare Moriarty: We need to focus on ensuring that we are in a position where small businesses can get insurance. That does not necessarily mean a solution such as Flood Re.

Q31 Mrs Trevelyan: But if it is a £100,000 policy they cannot get insurance. They have got huge excess claims of 25%. That is not a realistic insurance policy for them to take out if they are running a small corner shop.

Clare Moriarty: As I say, we have committed to look at the issue to understand what kind of solution is needed.

Chair: The Comptroller and Auditor General wants to come in. Then I have some questions.

Sir Amyas Morse: I just want to come back to the level of maintenance spend. Am I right in thinking it is pretty much the same level as it was before? So it has actually not increased. What you are already doing turns out to be the right level. Is that unfair or reasonably accurate?

David Rooke: After the last hearing, we published within a few weeks the long-term investment scenarios, which looked at what would be the optimal investment in flood and coastal-risk management, looking at the combination of capital and revenue resource funding. The studies we did showed that for a medium climate change prediction scenario, we needed to be spending around £170 million on maintenance, coupled with capital that was between £240 million and £280 million.

Sir Amyas Morse: Do you have a range for the maintenance as well?

David Rooke: £170 million to £210 million.

Sir Amyas Morse: So £170 million is the bottom of the range.

David Rooke: But the capital we are spending is above £280 million; we are over £300 million. That means that we are replacing the assets quicker.

Q32 Chair: But you are also building more assets in the capital budget. So your maintenance budget is about the same, as the Comptroller and Auditor General has highlighted, but you are going to have more over time to maintain.

Sir Amyas Morse: I want to pick up one other point, if I may. You are still, however, at the bottom of the range of maintenance. I am right in thinking that it still remains the case that at that level of maintenance there were quite a lot of flood-defence assets that you have decided to de-prioritise.

During your testimony you have been talking about high-impact assets, not the totality of your flood-defence assets. I am right in thinking it remains the case that there are quite a lot of flood defence assets that you have deprioritised maintaining. Is that right?

David Rooke: We have looked at the ones that it is no longer economic to maintain, so they are the ones that we are not maintaining. We have a process we go through, talking to local communities, landowners and others who own them in terms of their taking on responsibility. For the rest, we identify what we call minimum need, and minimum need is funded. That is what we need to keep an asset working. Then we also look at identified need, which is what we would ideally need to use to maintain that asset such that it performed over the full period of its design life.

Sir Amyas Morse: And having looked at those two—one costs more than the other, but I am guessing that at £170 million you are funding minimum need. Is that right?

David Rooke: No, we are funding minimum need for all our assets and then we are funding about half of identified need for what we call our asset systems, which in terms of number of assets means about 75% of our assets are funded to identified need and the remainder are funded to minimum need.

Sir Amyas Morse: Thank you for explaining it so clearly.

Q33 Chair: So the capital money is going in. I'm looking at Susan Acland-Hood and the Environment Agency. You are going to have more, therefore, to maintain, and already 50% of your maintenance is done only to minimum levels. I think that was from the NAO Report. That's right. So how have you done the calculations? Susan Acland-Hood, it is very inflexible. In local government, it is more flexible. You can move capital and revenue around a bit; you can capitalise the revenue and so on. But the Treasury seems really set. As you said, you would have to have good grounds for any change in that. Do you think, though, that the Treasury is the best place to make those decisions when you have all these Environment Agency managers with some really good local knowledge and understanding? Do you think the Treasury is up to this job? Financially, you may be, but it's a bit different when it's thousands of people's homes being flooded.

Susan Acland-Hood: There are a few things that are worth saying. Clearly, the Treasury does not make a set of unilateral decisions about a capital and revenue split in the absence of any evidence or input. We work very closely with both DEFRA and the Environment Agency in making sure that we are setting appropriate budgets.

Q34 Chair: You are setting a six-year plan, aren't you?

Susan Acland-Hood: We have a six-year plan for capital. We have made a four-year settlement for maintenance. And we used the long-term investment strategy numbers to inform that. You talked about capitalising revenue. There is a fair bit of flexibility in the settlement to move from revenue to capital funding. There is less flexibility to move in the other direction, but as with most Government Departments, there is some flexibility there. We have investigated with the Environment Agency whether they see that as a constraint on their operation, and they have told us that they don't find that is a sort of annualised constraint on their operation. On the question about whether we should be looking further at this as we go forward and as there are more assets to maintain, that is absolutely something we would want to keep under review, but of course those assets will not spring into being at the beginning of the period.

Q35 Chair: They will come in over time, but that raises the concern that you have more assets being built and therefore more maintenance, but your maintenance budget is the same in real cash terms.

Susan Acland-Hood: There is one more thing that is worth saying on that, which is that the Environment Agency put forward plans for about 10% efficiency savings on maintenance spend over this period and we, in a somewhat uncharacteristic Treasury move, did not bank those efficiency savings; we said that it was important that they should be reinvested in maintenance. So although there is a real-terms protection at that £171 million level, it is worth taking account of the fact that there are some efficiency savings that are being reinvested within that sum that should enable better outcomes to be—

Q36 Chair: I have to say that 16,000 homes were flooded and the people—them and others—who suffered the £1 billion of damage will be grateful for that crumb of comfort perhaps, but one of the concerns that I have in looking at all of this is the maths of it. The defences are determined by a one-in-100-year analysis of what might happen, and we have had one-in-1,000-year events a couple of times in the last five years. David Rooke, you talked about a complete rethink of things being needed. Do you stand by that, and what do you mean by it? What needs to be done differently to plan for these one-in-1,000-year events?

David Rooke: What I meant by a complete rethink was to look at the data that we have historically used to predict the future and see, with a changing climate, whether that is still a valid assumption; whether we need to update the predictions on climate change using latest information; and then, having looked at that, whether our models using that information are still fit for purpose with any changes that may come out of that.

Q37 Chair: And you concluded?

David Rooke: We are looking at this, and we will feed that into the review. Then we will look at a catchment-wide approach, so start working more with nature, rather than against nature. We have some really good examples across the country, at a local scale, where that is working. We need to look and see whether we can apply that universally, and then to look at improving resilience so that when properties and businesses are flooded, they can quickly recover. Then we need to look at local resilience measures at a property-level scale. I think it will be a combination of all those that will help us overall manage flood risk.

Q38 Chair: Resilience is all very well, but it is much better, isn't it, to prevent the flooding in the first place?

Sir James Bevan: It is, but the hard fact is that there is no such thing as 100% protection against flooding.

Q39 Chair: We have had two one-in-1,000-year events in the last five years or so. That is a big jump from the one-in-100-year planning. We get that it might happen once, but twice?

Sir James Bevan: One thing that I am clear about is that this description that we have been using of one in 100 is over. Nobody understands it, and it may well be inaccurate in terms of what has happened in terms of violent, more extreme weather. We need to think differently about how we describe the risk. I think what most people want to know is: are they at risk, and, if they are, what do they do about it?

Clare Moriarty: Building on what Sir James was saying, this is very much the territory of the national flood resilience review, which Oliver Letwin is leading. We have to look at whether or not the ways in which we have thought about flooding, and provided flood resilience and flood defences, are the right ways to go on thinking about it in the future.

One of the things that that review is looking at is turning the question on its head and looking at what bad things might happen and what those might translate into in terms of flooding, and then really understanding what we can do both on a temporary and on a permanent flood defence basis. We are making sure that, as well as maximising what we do upstream, we are also maximising what we can do on a rapid response basis to make sure that we are using our resources in the most cost-effective way to protect the maximum number of homes and properties at any given moment if there are flooding events.

Q40 Chair: When are we going to see the outcome of this rethink or this new strategy?

Clare Moriarty: The review will produce an update in the spring, and then I think it will probably run, in total, until the autumn.

Chair: Into the autumn.

Clare Moriarty: Yes. But there will be an update in the spring.

Chair: Okay. Anne-Marie Trevelyan asked for a list of good or bad local authorities on delivering strategies. I just want to make sure that one of you is committing to provide that. That is you, Clare, is it? It always falls to the permanent secretary; that is why you get paid so well.

Q41 John Pugh: Could we also have a list of the areas that have not actually submitted that strategy?

Clare Moriarty: Yes.

Q42 Deidre Brock: I notice that your Floods Minister is quoted as saying “I have a gut instinct that we need to be doing much more mitigation upstream—tree planting, peat bogs, meandering rivers”. That is the sort of thing that you mean when you talk about turning things on their head, if you like, and looking at it from the other point of view.

Clare Moriarty: Yes.

Q43 Chair: And have you looked at the cost-effectiveness of that? Is that part of the rethink, or is that something that has already been analysed?

Clare Moriarty: We have certainly looked at what measures are effective. Some research was done by the Forestry Commission on the impact that planting trees can have, for example. That was particularly about effectiveness rather than cost-effectiveness, but I think there is reasonably good evidence on that.

Chair: We have a vote, so we will just have some very quick questions from Caroline Flint and Anne-Marie Trevelyan.

Q44 Caroline Flint: It is good to hear that that knowledge is being looked at, and you are looking at the type of flood defences. Of the current flood defences that are out there—some of which did fail, it seems—and those that are in the pipeline, are you going to be looking at them and using flexibility to say that some that are in the pipeline are not the answer, and, for those that currently exist, going back to see what remediation could happen to them to make them better for the future?

Sir James Bevan: Yes, we are looking at that. In the example of the Foss barrier, we have had money from the Government to repair flood defences that were damaged in December, and £10 million of that will be devoted to both repairing and upgrading the Foss barrier to make sure that it is in a better state if we experience an extreme weather event again.

Q45 Chair: My final question is on Flood Re, and Anne-Marie Trevelyan touched on it. I know that your predecessor issued a ministerial direction to introduce it, because it was not value for money. Are you evaluating this as it goes forward and is implemented by the Government, to make sure that there is some better value for money being got out of Flood Re?

Clare Moriarty: I am sure we will, yes.

Q46 Chair: You will. So that is a commitment. Will you be publishing any evaluation of it from April onwards?

Clare Moriarty: Personally, I am quite happy to make that commitment. I think we should evaluate and we should publish.

Chair: Fine. Next time you are in front of us for something, we will definitely call that up as well. I am sorry that we were interrupted by the bell, and that it was a bit rushed. The transcript will be available in the next couple of days, uncorrected, on the website. Our report will be out in due course—or a note or memo from this hearing. I appreciate your time. Thank you very much indeed.