



Environment, Food and Rural Affairs Committee

Oral evidence: [Winter Floods](#), HC 991

Wednesday 26 February 2014

Ordered by the House of Commons to be published on 26 February 2014.

Written evidence from witness:

- [Association of Drainage Authorities](#)

[Watch the meeting](#)

Members present: Miss Anne McIntosh (Chair); Jim Fitzpatrick, Mrs Mary Glendon, Iain McKenzie, Sheryll Murray, Neil Parish, Mr Mark Spencer

Questions [72-182]

Witnesses: **Dr Jean Venables**, Chief Executive, **Henry Cator**, Chairman, and **Tony Bradford**, member of Executive Committee (South West), Association of Drainage Authorities, gave evidence.

Q72 Chair: Good afternoon and welcome. May I thank you for joining us for our evidence session looking at our inquiry into winter floods? Just for the record, could I ask you to introduce yourselves and give your position?

Henry Cator: My name is Henry Cator. I am the Chair of the Association of Drainage Authorities.

Tony Bradford: I am Tony Bradford, a farmer on the Somerset levels. I am Vice Chairman of the Parrett Internal Drainage Board and Chairman for the South West, Association of Drainage Authorities.

Dr Venables: I am Jean Venables. I am Chief Executive of the Association of Drainage Authorities.

Q73 Chair: You are all extremely welcome. A little housekeeping if I may: I would like to refer to the Register of Members' Interests, and also declare that I am an honorary Vice President of the Association of Drainage Authorities.

Neil Parish: Can I declare an interest that I pay drainage rates to the Bridgwater and Pawlett district drainage board?

Q74 Chair: On housekeeping, we are expecting an interruption for a vote. We crave your indulgence. We will adjourn for 15 minutes for that period.

Could you remind us which waterways drainage authorities are responsible for, and particularly the contours you are responsible for?

Dr Venables: Internal drainage boards cover one-tenth of England and Wales, areas of special drainage need. They are low-lying areas, up to three metres below the adjacent river level or the adjacent sea level, and they spread right across the country.

Q75 Chair: I had the good fortune to attend the Annual General Meeting of the National Farmers' Union yesterday. The figure that I think I understood was that 58% of productive land is below the five-metre contour, and is at risk of flooding. Is that a figure that you recognise?

Dr Venables: Yes. Not only is that good agricultural land and good food production land, but a lot of food production manufacturing is associated with that land as well. Our food processing industry, which is one of the biggest manufacturing areas in this country, is associated with that land too.

Henry Cator: I would add, Chairman, that 64% of the grade 1 land in this country is situated in internal drainage areas too.

Q76 Chair: We are going to come on in a moment to look in more depth at the revenue aspects of flood maintenance. Was there a change in the way that the points were allocated in the mid-2000s—2004, 2005—to the extent where the Environment Agency took over the responsibility for some of the roles that you previously performed as drainage boards?

Dr Venables: I am not sure of the context of that question; I am sorry.

Q77 Chair: For example, in my own area, I campaigned to get Cod Beck, which was responsible for flooding Thirsk, enmained. We managed to get a badge of the enmainment, but then we were told that there was no funding from the Environment Agency because the points were being allocated to properties.

Dr Venables: There was a big push at that time to do a lot of enmainment of non-main rivers. That transferred that responsibility from local authorities and internal drainage boards, being responsible for non-main rivers, to the Environment Agency, being responsible for main rivers. Having done that, because they were important riverways, the ability to spend money on them was diminished, because the focus had to be on people and their homes. In rural areas, where they had been enmained, it meant that the waterway received very little or no attention at all.

Q78 Chair: Mr Bradford, are you able to share with the Committee how much the local drainage boards that are responsible for the Somerset Levels pay to the Environment Agency as a sort of levy or a precept every year?

Tony Bradford: In precept, the Axe Brue pays a levy of £243,000, and the Parrett pays £197,000.

Chair: Per year.

Tony Bradford: Per year.

Q79 Chair: With that money, does the Environment Agency do any dredging of the Parrett or the other rivers on the Somerset Levels?

Tony Bradford: No.

Q80 Chair: So as far as you are aware, that money goes into a bottomless pit?

Tony Bradford: Yes.

Q81 Chair: Do we know how much the district council pay? It does not matter if you do not. Do you have that figure?

Tony Bradford: For the Axe Brue, the district council pay £663,000, and for the Parrett they pay £639,000. The total is £1.2 million for the two boards.

Chair: £1.2 million for one, and how much for the other?

Tony Bradford: No, for both boards.

Q82 Chair: But broadly speaking, they are getting just under £1 million from two separate sources.

Tony Bradford: Yes.

Q83 Chair: Are you aware of any other monies going into the Environment Agency for the same purposes from other sources?

Tony Bradford: No.

Q84 Chair: That is a sizeable amount of money. Can I just say on behalf of the Committee, and for those farmers that I represent, that our thoughts are very much with everyone on the Somerset Levels who has suffered the loss that you have. To what extent do you think that regular drainage and regular maintenance over a period of time could have reduced the risk of flooding and this particular event?

Tony Bradford: Regular dredging of the Parrett and Tone stopped just about over 20 years ago. It was okay for the first two or three years, but if you can understand a tidal river, the silt did not build up immediately; it built up over a period of time. What we have seen now is a gradual build up of silt in the river. The capacity of the Parrett and Tone is only about 50% at best. What we are finding now, and what I keep saying is that although people say we have had the wettest January on record, we flooded after the first inch and a half, not the last inch and a half of rainfall. It was the initial burst of rain that flooded the Somerset Levels.

What we are finding now is that the rivers cannot cope with it. It is overspilling into the moors, to a greater width and to a greater depth, and it is staying there longer. We believe the annual dredging of these rivers would not stop all flooding in the actual land of the moors, but what we cannot tolerate is the situation that we have got in Somerset at the moment. Two villages especially have been under water now for 10 weeks. With a fair wind blowing, we think we could have minimised the road closures and the property flooding that has taken place over the last 10 weeks. Bear in mind that on the main arterial route through Somerset, from Glastonbury to Taunton, we have not seen the road for two and a half months—it is still under six or seven feet of water, and it is likely to stay that way for some time to come. The houses in the village of Moorland and Fordgate are under three or four feet of water. The church has three feet of water in it, and it is just staying there.

We believe that if the river had been put back to its proper carrying capacity, it would have still flooded, but not to the extent, the duration and the depth we have got now. We are realistic enough on the Somerset Levels: we are going to flood, because of where it is geographically. However, it used to stay out there, where it is meant to go, but now it is spreading wider and deeper. Even the better farming land is now getting flooded to serious depths. We have to take control of the river back. We have to keep the water where we want it to be. We have to convey it to the sea as quickly as possible. It is not about water storage; it is about evacuation: getting it from A to B in the quickest possible time we can.

I believe dredging the rivers is not the only solution, but it is the biggest solution at the moment, and it is the quickest solution straightaway. There are other plans, and other things that can be called in to help—upland catchments, slowing water down, planting trees—but that is a long-term vision. What we need now, and what would have the most impact to reduce the flooding on the Somerset Levels, is to dredge that river back to where it was. I believe that, starting next month, they are going to dredge the river back to the 1960 design level. This is very welcome.

Q85 Chair: Can I just ask, Mr Bradford, when you think the two rivers were last dredged?

Tony Bradford: I would say about 22 or 23 years ago.

Q86 Chair: My understanding was that the IDBs were responsible for these rivers prior to 2004.

Tony Bradford: No.

Chair: That is when I understand the badge changed from being enmained.

Tony Bradford: Before they were handed over to the Environment Agency, it was the responsibility of the NRA—National Rivers Authority—but before that it was the Somerset River Authority.

Q87 Chair: I am just trying to get my head around this, because it is quite important. Cod Beck and other watercourses in my area only became enmained in 2004-5. What you are saying is that they became enmained in 1994.

Dr Venables: They were already main.

Tony Bradford: They have always been main rivers.

Q88 Chair: What do you believe is the main lesson to be learned from the winter floods, particularly in the Somerset Levels but the Thames Valley as well?

Tony Bradford: I think the main lesson to be learned is that for far too long, successive Governments have underfunded maintenance and have put too much emphasis on capital build rather than maintaining the structures and rivers we already have. That has been one of the main problems. That is probably the biggest problem. We have also been restricted by environmental schemes. We need these environmental schemes, and we welcome them, but the problem is that there has been too much attention paid to environmental schemes over farmland, people and property.

Q89 Chair: Dr Venables, is there anything that you want to add about the Thames Valley or other areas?

Dr Venables: We are talking about the Somerset flooding, but we are actually only talking about the River Parrett's catchment flooding. The parallel catchment, the Axe and the Brue, and two other IDB areas that are down in the South West, are not flooding. It is not simply because we have had a lot of rain, although that has not helped. It is because there is not an outlet and there is not a capacity for flow. The Axe and the Brue catchment also has had a similar amount of rain, and also outfalls into the River Severn, but it is not flooding. It is possible to design a system to cope with the amount of rainfall and to act properly, and it is just not doing so in the River Parrett.

Q90 Chair: You will be familiar with our report from last July, *Managing Flood Risk*, in which we concluded that the drainage boards should be allowed to keep the levy or precept that you are paying currently into the Environment Agency. Is allowing the drainage boards to keep the money and do the work something that you would welcome, Mr Bradford?

Tony Bradford: I believe the way forward is to change the legislation so we can levy a drainage rate on every landowner and property in the Somerset catchment. The IDBs could take over the maintenance of these main rivers. In principle I agree with that, but it has got to come with a lot of finance and a lot of discussion before we can do that. One of the main things we feel is that all the water on the Somerset Levels and Moors comes from other areas. It is not our water, and I think it is only fair that they should pay a general drainage rate the same as we do to get rid of the water and farm the water. They should be contributing on a Somerset catchment basis, so that we have more funds to maintain these rivers and help the situation.

Q91 Chair: My understanding is that that is where your precept is coming from; these landowners have already contributed. You are asking them to contribute twice.

Tony Bradford: Yes, but that is only up to a certain level. You pay a drainage rate on a three-metre contour line, I think: anything below, they pay a drainage rate, and when you get above that, you are exempt from drainage rates. That is where I think it is very wrong. The ratepayers are telling me the water is coming from all over the place—Taunton, Yeovil, Glastonbury—and they are getting away with paying nothing. The poor people that are flooded are being asked to pay to get rid of it, which cannot be right.

Henry Cator: Chairman, I was down at Somerset at the weekend, and the local farmers down there said that 95% of damage could have been avoided if the Parrett and Tone had been regularly maintained.

Chair: That is very helpful.

Q92 Mr Spencer: What is the most effective way to decide the level of maintenance? What process do you go through in working out what maintenance to actually do or not do?

Henry Cator: What one is trying to do is to look at the drainage capacity of a river. The rivers we are talking about in Somerset and other flatlands around the country are dependent on a design. They are artificial watercourses, or heavily modified watercourses, and they are designed to carry a certain amount of water.

Q93 Mr Spencer: How do you come to the conclusion to dredge one location but not another location? How does that process work?

Henry Cator: Often you can see where the blockages are. If you visit the River Parrett, you will see that in large areas 50% of the river is full of sediment and reed, and so

is incapable of carrying any water at all. Like any hosepipe, if you have a small one it is only going to move a small amount of water.

Q94 Mr Spencer: Of course. Are there any financial considerations, in terms of the fact that if you do not dredge a location it may flood an area, but that it may be financially more acceptable to flood, say, farmland than people's properties? Are those considerations taken into account at all?

Henry Cator: As internal drainage boards, we like to think we are protecting the people who pay rates and have property and businesses in the area. On the whole, they do not like getting their businesses and homes flooded. By the proper maintenance of watercourses, one is able to ensure that they do not flood.

Dr Venables: The land is somebody's business. It just does not happen to have a roof over it. By flooding that land, you can cause damage. It can flood infrequently and for a short duration without causing damage. It is the duration and the depth that causes the damage to the land. If you are an internal drainage board then you are using your local knowledge and your professional judgment, as well as your measurements of what deposition has taken place.

Tony Bradford: There has always been a cost-benefit system applied right across the country, but in Somerset it is the wrong system to use. They have never done any work on maintenance on rivers because the benefits did not outweigh the costs, but the situation has got so bad now. Believe you me, if you went down to see the situation, the cost is going to be horrendous, so benefits from doing it now is not an argument to use. What it is going to cost to clean up, I do not know. However, when it is cleaned up, the river has still got to be dredged, so it has been a false economy all the way along.

Q95 Mr Spencer: Do the drainage boards have any conversations with either riparian owners or local authorities further upstream to discuss how they are maintaining their watercourses, or is that completely outside your remit?

Henry Cator: We do have conversations with them. We just do not get any money for the conversations we have with them.

Mrs Glindon: I would like to ask questions on funding. Funding for maintenance has reduced over recent years, as we all know. How best can levels of protection be achieved and sustained with the maintenance of the levels of funds that are currently available?

Chair: Before you answer that, I am going to apologise and say we will adjourn for 15 minutes. We will take your replies when we come back.

Sitting suspended for a Division in the House.

On resuming—

Chair: We will reconvene. I think Henry Cator would like to reply.

Henry Cator: Forgive me, Madam Chairman, can we have the question repeated so everybody is familiar with what we are answering?

Q96 Mrs Glindon: It is about funding. Because funding has been reduced over the years, how can the best levels of protection be achieved and sustained with the maintenance funds that are available now?

Henry Cator: I believe one of the best ways is going to be to give local people much more say in how that money is spent, because, on the whole, local people have a much closer connectivity with the catchments that we are talking about. We all realise that money is very short. There is not a bottomless pit. The consequences of not spending anything on maintenance are dire, as we have witnessed. Any property owner who spends nothing on maintenance is going to end up with a large capital sum to spend in future. I am saying that local people, through their internal drainage boards and their local authorities, should be allowed to decide where the best place to spend that money is in their district.

Q97 Mrs Glindon: They could feed in that way, because obviously there would have to be a process to have those voices heard.

Henry Cator: Absolutely. The local people are the people who understand the difficulties in their area. Every catchment is different. The problems that are being experienced in Somerset are different from those that were so nearly experienced in the east of the country. During the St. Jude's Day storm on 7 December, the east of the country came within inches of being inundated. It was only spared by luck. Be in no doubt: there is no room for complacency.

Dr Venables: Although we are concentrating on Somerset because it has, very sadly, flooded so extensively, a lot of other areas are close to being in that situation. It is absolutely important that we look at how we repair and recover from the situation that we are in. I would be very concerned if the repair costs and the recovery costs were to come out of the maintenance budget, because it is not a substantial enough sum as it is. I would be extremely concerned if it was made even smaller by having to cover the repair costs.

Tony Bradford: I would like to echo what Jean has just said. If we are going to dredge the river—and we start next month, hopefully—then we need that to be made separate finance from the recovery that is going to have to take place in the Somerset Levels. It is going to cost a fortune. I could not put an estimate on what it is going to cost to get it back to normality; it is not going to take one or two months. It is going to be a minimum of 12 months before people get back to some normal way of life, and we hope that the finance will be kept separate from the maintenance programme.

Q98 Mrs Glindon: As we are all aware, the Government has announced an additional £130 million for emergency repairs and maintenance. Where should the maintenance portion of this funding be directed, in your opinion?

Henry Cator: It needs to be directed on a prioritised basis in each catchment, because maintenance has fallen so far behind over a number of years that a process of catch-up is needed. You just have to prioritise in each catchment where it is best to spend that money locally.

Dr Venables: It is not going to be enough, locally, in each case. A degree of prioritisation is needed. As I understand it, £30 million is allocated for this year—this financial year, I presume—and £100 million for next year, so it is not all immediately available.

Q99 Mrs Glendon: So you think that the maintenance should be tailored to need?

Dr Venables: It always has to be. Both the Environment Agency and the IDBs run out of money before they run out of jobs to do.

Henry Cator: Maintenance is not a luxury. It is not something it would be nice to do. If you do not do it, you are in trouble, and we are very nearly in trouble in a huge number of areas throughout the country. It is time the Treasury realised that proper money needs to be invested in maintenance if we are to have any hope at all of protecting ourselves against the challenges that climate change is throwing at us.

Q100 Mrs Glendon: This just needs a very short answer, or you may want to just summarise. What type of maintenance activity, with this limited sum of money, is most in need of that money? Is there any specific type of maintenance that you would say could be prioritised from the limited amount?

Dr Venables: There is a need to keep outfalls clear of debris and silt. There is a need to make sure that all the pumping stations work effectively and are properly maintained, repaired and renewed as necessary. We are having increasing problems up and down the country with the impact of the Local Audit and Accountability Act, because that included the IDBs within the cap for local authority expenditure. Although it has not capped IDB expenditure at 2% in the legislation, it is being interpreted up and down the country as meaning that the local authority has to limit its increase to 2%, and therefore it is limiting the IDB increase to 2% as well. That has already meant that one pumping station that does need serious maintenance is not going to get that, because the 2% rise that they were limited to is not going to be enough.

Q101 Chair: Is there any evidence that some of the silt is being brought in from the sea?

Dr Venables: In some cases, yes.

Chair: In Somerset in particular, in the River Parrett, is there any evidence that the silt is coming in from the sea?

Tony Bradford: Yes, there is evidence that the silt is coming in from the sea.

Q102 Jim Fitzpatrick: I just wanted to ask if you have had a chance to look at the reductions in the number of staff at the Environment Agency. Is that going to make the situation more complicated and more difficult? Is it something that you have not had a chance to look at, or do you not have an idea on it? It is an issue that has been raised.

Chair: I think you would rather do the work yourself, would you not?

Dr Venables: In a lot of cases we work very cooperatively with the Environment Agency, under the public sector cooperation agreement. That is rolling out extremely well. It is fairly new, but it has been very effective. Through that agreement, internal drainage boards are doing work for the Environment Agency at IDB rates. That is proving very helpful. We do regret that staffing reductions are taking place in the Environment Agency at all, but certainly in a flood defence area, because there is just so much work to do.

Henry Cator: A lot of the money needs to be directed at the front-end work—the work on the ground actually maintaining these watercourses. A lot of people that perhaps

push pens in offices are not doing too much to clear what is necessary on the ground. It is what is on the ground that is not being done.

Q103 Neil Parish: My questions are again on dredging. We have talked about the principle of dredging, especially in the Parrett, and so we believe that will help a great deal. What I want to talk about directly with the Parrett is, of course, that it is very tidal as well. One of the combinations we have had at the moment is that an awful lot of water is being pumped into the Parrett further upstream, and there have been very high tides, which come in and push the water back. Is the long-term solution in the Somerset Levels, like it is in parts of the eastern counties and the Fens, to have some sort of tidal sluice on the end of the Parrett?

Tony Bradford: I can answer that question, Chairman. It has been discussed. I could find some papers. I think it was first discussed in 1928 that the Parrett needed some sort of sluice doors on its exit to stop the tide coming back in, because a lot of the silting would decrease. The way forward for the Somerset Levels is the IDB's 10-point plan, which ADA has adopted as well with a few minor alterations. For the Somerset Levels and Moors, the first one was the dredging of the rivers, the second one was the tidal sluice, and the third one was the change in the way we collect drainage rates. Those are the three most important things that could reduce flooding on the Somerset Levels.

In that 10-point action plan, you could plant trees in upper catchments and you could hold water in upper catchments, but the three main things are the first three I mentioned, which are the dredging, the tidal sluice, and the collection of drainage rates in a different manner. I will still emphasise that the quickest way to reduce the flooding in Somerset at the present time—and probably over in the eastern counties, in Yorkshire, and all over the place—is to get these rivers in A1 condition so that they can convey water from A to B as quickly as possible.

Q104 Neil Parish: I declared an interest at the beginning, but I actually farm on the end of the River Parrett. The river is very tidal. When you have a short period to get that water out, then naturally the more the river flows, the faster you can get the water out. That is key to it, really.

Henry Cator: Sir, you referred to the east of England. Catchments such as the Witham always have a pumping station, so that when the system is tide-locked or there is high tide, you are also able to lift water over. I believe the thing that Tony has not mentioned, but he showed me on Sunday, is a potential site for a pumping station at Dunball.

Neil Parish: There are huge Dutch pumps there.

Henry Cator: Correct. They are doing the job that a permanent pumping station would do in the future.

Tony Bradford: If I could follow up on that, as Henry rightly said, we have been campaigning for a pumping station at Dunball for years, because in the River Parrett there is also a channel that we let water in to called the Sowey River—otherwise known as the Parrett relief channel—upstream near Langport. In times like we have just had now, we open the sluice gate up there to take the water out of the Parrett and send it down the Parrett relief channel, down through the King's Sedgemoor Drain. It ends up in Dunball. That is fine when the tide is out, but when the tide is in we are on tide-lock, and then the water just goes everywhere uncontrollably.

If we could have a pumping station down there that could pump at high tide so we could evacuate water 24 hours a day—not all the time, but in times of need like we have had now—it would be of great benefit. Also, the Sowey River was never fully finished to its design capacity. I think it ran out of money several years ago when they designed it, because if you look at the bridges over the Sowey, they are wider than the actual river. We have got the bridges in place, but we have not got the water in place. By sending more water down through that system, you could let more water out of the Parrett and into that system; then the Tone, which takes water out of Taunton, would have more conveyance down to where it joins to the Parrett at Burrowbridge, and that would help all of the people down through the system.

Q105 Neil Parish: To talk briefly about pumps, Chairman, we have got these massive Dutch pumps now that are portable. Is there an argument that we actually set a base where you have got the pipes there ready, and then you move these big portable pumps around the country so that you do not actually have millions of pounds worth of pumps sat there idle? If we can bring them in from the Netherlands, surely we could have a few of our own, could we not?

Henry Cator: It would be a very good idea, if there is any money to pay for them.

Chair: I am sure you have got money to pay for them, Mr Bradford.

Tony Bradford: The thing with that, Neil, if you do not mind me saying, is that that is fine, but the fact is that it takes time. In the situation we have had now, a week is too late. You need to be able to press that button immediately and see signs of flow. As soon as you see any sign of danger, or any sign of water levels causing a problem, it would be nice just to say, “Alright, let us switch those on, alleviate the situation, and then it is okay.” We are fortunate to have these pumps down at Dunball now, but I think they took three weeks to install. I know that was from scratch.

Q106 Neil Parish: Is dredging a short-term solution or can it be part of a long-term approach? I think I probably know the answer.

Henry Cator: It is a short-term solution, but it is also part of a long-term approach. Once you have done it, then maintain it and make sure it keeps clear.

Q107 Neil Parish: Are these not the lessons that we need to learn above all? For years the powers that be have said that dredging does not really work. When I was an MEP back in 2001-2 they were patting me on the head and saying, “Mr Parish, dredging does not work.” We have got to actually change the concept; would you agree with that?

Dr Venables: Sometimes dredging does not work, but a lot of that evidence has been collected from rivers. For upland, steep rivers, you would not be thinking about dredging. However, we have got as much length of artificial channel in this country as we have got natural river, and those artificial channels are usually very flat. They are taking soil and debris from the fields, and you need to de-silt them. We have actually got to be very careful, because a lot of documents describe dredging in different ways. Dredging, to us, is de-silting—actually removing the silt that has actually flowed into the channel. You need to remove it for the river to go back to its original capacity.

Sometimes dredging is described as that activity that deepens and straightens. We are not talking about that when we talk about dredging; we call that re-profiling. One of the problems that I have uncovered in preparation for this session is the range of definitions

people ascribe to the word “dredging”. We have got to be careful. When somebody says that dredging is not useful, it may well be true for how they define it, but it is not correct to say dredging is never helpful. A lot of the environmental designations that we have in these low-lying areas are there because of how we manage it, not in spite of it.

Q108 Neil Parish: Much of the drainage in Somerset Levels and the Fens, of course, is entirely manmade as well. There is a difference between a manmade river and a natural river in some respects.

Dr Venables: That is the point I am trying to draw out, yes.

Q109 Chair: Are there times of the year when it is best not to dredge?

Dr Venables: It depends on the nature of the river. That is why you would do an environmental survey and make sure that you did it at a time that was most suitable for that particular location.

Chair: Just to help the Committee, if you have permanent pumps at a particular site, who is responsible for maintaining and paying for the maintenance of those pumps?

Henry Cator: Hopefully the internal drainage boards.

Dr Venables: But we would need a funding stream to cover it.

Q110 Chair: If there are pumps in place, which I understand might be at Selby, for example, which might return to the ownership of the IDBs, but they are not in a condition that they were when they were handed over to the Environment Agency, who would be responsible in those circumstances for putting them in a good state?

Dr Venables: If one organisation wants to hand over an asset to another and it is in a very poor state, then it is important to negotiate some money that comes with it, in order that it can be restored to a state that it can be used. Then the receiving organisation would continue to run it. It is important that the state of the asset is recognised when it is handed over.

Q111 Chair: Is this something that would be subject to negotiation?

Dr Venables: I think very robust negotiations would be needed.

Q112 Neil Parish: Can I just ask one supplementary? Is there an argument that the pump should be turned on quicker as well? If we know a flood is coming, are we actually keeping our rivers and our tributaries clear enough? Are they pumped clean so they are ready for water?

Dr Venables: In a lot of IDB areas, when there is a warning of heavy rain to come, they will lower the levels. Because they are all under management, they will lower those levels in anticipation of the rain, so it creates storage for the rain coming down. One of the reasons why internal drainage boards generally do not flood is that there is this storage created in anticipation of the storm.

Chair: We do need to move on very quickly, please. We have two other groups of witnesses.

Henry Cator: I was just going to say that by holding water levels high for environmental reasons, your reservoir capacity is much less, so when you get heavy rainfall, it hits the rivers and the pumps that much more quickly.

Q113 Jim Fitzpatrick: We started to touch on this in terms of the division of responsibility for maintenance. Can you comment on the way that it is currently allocated between the Environment Agency, local authorities and IDBs? Is it about right, or do you think there ought to be adjustments?

Henry Cator: We have already said we think there need to be drastic adjustments to the amount that is put to maintenance.

Q114 Jim Fitzpatrick: Yes, but is the balance between the different responsible agencies not a factor? It is about how much investment and how much actual maintenance is being undertaken, regardless of the different definitions of dredging Dr Venables mentioned.

Henry Cator: We would all like to see more money available for maintenance from all quarters. The local authorities are now under pressure because they have not got the money. The IDBs will spend as much as they can out of the budgets they have. We know that the Environment Agency budget on maintenance has been cut and cut and cut.

Q115 Jim Fitzpatrick: Is the IDBs spending as much as they can not enough? Do you have enough of a responsibility charged with them?

Henry Cator: We do not have enough, because what is happening is the reserves of the boards have been run down in order to try to maintain the assets we have. There is not enough money coming in, and we are being capped under local government legislation at 2%. If you need a new pumping station, and it does not come within 2%, it will not get built and will not get maintained; that is the end of it. You cannot have half a pumping station; this is the trouble. You either have it or you do not.

Q116 Chair: Is that under the district council contributions that they are paying?

Henry Cator: Yes. The cap on the special levy is 2%.

Q117 Neil Parish: We need to tap into more of what is sent to the Environment Agency. That would help, wouldn't it?

Henry Cator: I welcome any more money able to be spent on maintenance of our assets.

Q118 Jim Fitzpatrick: The existing public sector cooperation agreements—

Henry Cator: They are to be welcomed, but they are very limited at the moment.

Q119 Jim Fitzpatrick: Mr Bradford mentioned earlier about the responsibility being shared to higher levels and not just the people who are making a contribution at the moment. We have been told about the seven landowner watercourse maintenance pilots that are underway. Is that the right direction of travel? Do you think there is a future in that, or is that too limited or totally inappropriate?

Dr Venables: It is very early days yet. It is a very good direction to go in. It is too early to draw any conclusions, but we welcome the opportunity. Trying to have appropriate and easy-to-get consent is important, and it is demonstrating what is an appropriate level that is needed for this sort of activity.

Tony Bradford: We are at a crossroads now, really, because the inactivity over the last 20 years on main rivers has just about now come back to haunt us, and we need vast sums of money. Once we get them back into proper order, though, the amount of money would be far less just to keep an annual maintenance programme going on. We have not done anything for so long, and now we need huge sums of money to put it right. We have

to put it right because there is no other way forward unless you dredge those rivers to make a start.

Once they are in that, you cannot walk away again for another 20 years. There has to be an ongoing maintenance programme, so we spend so much each year, as the internal drainage boards do. We collect the levy off all the ratepayers. We have viewed rhynes all over the catchment. In Somerset, we do over 1,000 kilometres of rhynes maintenance every year. We do it to the highest standard possible, and it is all finished on time. Those rhynes are kept in A1 condition every year. If we were to neglect them for five years or 10 years, the amount of money needed to put them back in the order they are now would be colossal. It would never happen.

This is what has happened with the rivers. All our main rhynes and viewed rhynes are maintained on an annual basis. We work out what it is going to cost, and we collect enough money to cover that. For the rivers, once they get back into the condition they should be, we must make sure they never deteriorate again to such a state that we have a crisis like we have now.

Henry Cator: The cost of inaction is very high, too. I think the bill for diesel for the temporary pumps is running at £200,000 per week.

Q120 Chair: The current pilot schemes, of which there are seven, seem to be working quite well. Should we wait until October before we roll them out elsewhere in the country, or should we persuade the Government to, after March, allow them to extend to other parts of the country, to allow landowners to do their own maintenance?

Henry Cator: I believe the sooner we can expand them, the better, because I cannot give you a guarantee that next winter is not going to be as wet as this one. Climate change is giving us unprecedented weather cycles. We are very vulnerable as a country.

Q121 Mrs Glindon: Can dredging be used in combination with natural flood-defence techniques, such as planting woodlands upstream and establishing flood storage areas? Is that a good idea?

Dr Venables: There are a lot of things that you need to do in a catchment. You have to look at a catchment as a whole. There is what you do in the upland part—planting trees, looking at land management, managing the runoff from urban areas. One has only got to look at the area outside King's Cross to think that it is not helping matters very much in terms of runoff. The more we have out-of-town shopping area car parks that are not controlling the rate of their runoff, the worse it is for people living downhill. We have to take measures to control the rate of runoff from upland areas; we have to look after the capacity of the channels through dredging, proper maintenance, removal of weeds, in an appropriate manner; and we have to think about the outfalls from those low-lying areas being able to run sufficiently freely to avoid significant flooding. So there are different things you do in different parts of the catchment, and they are all essential.

Henry Cator: The point you make is very good, because a lot of management can be done upstream that would help ameliorate the problems downstream. Soil drains best when it is friable and has structure. Once you waterlog and flood it, it loses that structure and water just runs straight off the top of it, as in a flash flood. The more you can do upstream and upland to manage soil, to keep it in good heart, to keep it well drained, the more it will absorb before it ever reaches the bottom end of the catchment.

Tony Bradford: The silt that is coming out is quite an asset, because it is not waste, as one would say. A lot of farmers would welcome this silt, because it has a fertility value to it. Also, it has already been looked at whether, with the excess silt that comes out in the two villages that flooded, we could build a bank around them to protect them further in future. The main thing is to get it out in the first place, though, and then we will sort it out, once it is out of the main rivers.

Q122 Mrs Glindon: In the villages you have spoken about, but in any low-lying landscape like the Levels, what other management measures would be beneficial alongside the dredging?

Henry Cator: Good farming practices and common sense. The local people know how to do these things: plant trees, have buffer strips, have proper buffer areas, with maintenance. It is management of the land that you are talking about.

Q123 Chair: I think you are a distinguished first-ever lady President of the Institution of Civil Engineers. Have you drawn any conclusions as to the implications of the Reservoir Safety Act for the upstream storage that Mrs Glindon referred to?

Dr Venables: If we do upstream storage that is over a certain volume capacity, then it will have to comply with the Reservoirs Act. The guidance for that is being written, but I know, Chairman, that you are very concerned at the speed at which it is being written. It would be helpful if we were able to progress that, because storage in the appropriate place, certainly in the uplands areas, can be beneficial, and can improve flooding. It is not so beneficial at the lower ends of the catchment.

Q124 Chair: You will be familiar with the Pickering pilot project in my own constituency, which has brought huge dividends and saved Pickering from flooding, so I hope that that can work. I am rather gobsmacked that we are still waiting for the reservoir safety guidance. We were promised this a year ago, so do you know, wearing your ICE hat, when you might expect this? Is it being written by the Institution, or is it being written by the Government?

Dr Venables: The last time I inquired, which was not very recently, it was with Defra at that particular time. I will inquire again.

Q125 Chair: We shall certainly make inquiries also. Who is responsible for maintaining that upstream storage if it is deemed to be a reservoir? Is the person on whose land the water is stored deemed to be responsible for maintaining that reservoir?

Dr Venables: It would be the owner of the dam.

Q126 Chair: Who is deemed to be the owner?

Henry Cator: It might be a water company, because they could use the water for public water supply. Grafham Water, for example, is the responsibility of Anglian Water.

Q127 Chair: If it is not deemed to be a reservoir for those purposes, if it is just deemed to be flood prevention, who would be deemed responsible?

Dr Venables: If it came under the Reservoirs Act, there would be a designated owner of it and the legal implications would kick in. If it was simply land that flooded but did not form a reservoir in the legal sense, then the provisions of the Reservoirs Act would not apply.

Q128 Chair: It does seem to be a grey area.

Dr Venables: The volumes are quite specifically laid down.

Q129 Chair: Mr Bradford, this was clearly a one-in-250-year event in the Somerset Levels. How much do you think dredging might have saved it from flooding?

Tony Bradford: We had it two years following, so the one-in-250-year event does not really apply. We had it in 2007; we had it in 2001; we had it in 1999. Every time we get it, it is getting worse. What worries us now is the fact that, if we have an inch and a half or two inches of rain, we are flooded. What has happened now is in the winter. If you can imagine, four months on, we have a flash thunderstorm, which is quite likely, we could be flooded again. If we get flooded in the summer, the implications of that are 100 times worse than what we have now.

Q130 Chair: You mentioned, Mr Bradford, that you think there should be a better balance between capital expenditure and maintenance. As a last question to the panel, do you believe that the division of finance between the capital expenditure and the maintenance revenue side is clear?

Dr Venables: It is clear. I would not want to decrease the capital to increase the maintenance. I would want the maintenance budget increased, please.

Chair: Thank you very much indeed for participating in our inquiry and being with us this afternoon. You are most kind. Thank you.

Examination of Witness

Witness: Martin Whiting, Chartered Institution of Water and Environmental Management, gave evidence.

Chair: Mr Whiting, thank you very much indeed for being with us. Could I ask you, for the record, to give your title and description?

Martin Whiting: I am Martin Whiting, representing the Chartered Institution of Water and Environmental Management. I am a past chairman of the national Rivers & Coastal Group. I am a chartered civil engineer by profession.

Q131 Chair: Was the study, *Floods and Dredging—a reality check*, funded by CIWEM?

Martin Whiting: Indeed, in part. You will see acknowledgements on the back page of the other partner organisations that participated in both the funding and the production of the document.

Q132 Chair: I think you conclude that, particularly in relation to the Parrett and the Tone, dredging could have made a difference in the duration of the flooding this year, with the winter floods.

Martin Whiting: It was based on the modelling that took place after the 2012 flooding that indicated, for a different rainfall event, and for a different tidal event, there was a benefit that could have been achieved through dredging. It is probable, but it is still subject to study, that the duration of the flooding may well have been reduced.

Q133 Chair: Do you think that dredging is appropriate? In which conditions is it appropriate to dredge main rivers?

Martin Whiting: Dredging, as with all other manmade impacts on natural water systems, has to be considered in totality of the river catchment where it is being proposed. In some instances, dredging on a manmade channel will have a beneficial effect, but it has to be appreciated that dredging was first introduced because it was a navigation aid when vessels were coming up the river systems. It was then continued as a land-drainage function to enable farming land to be best utilised. Only in recent terms and recent times has it been considered to have an impact on flood-risk management.

One of the diagrams included within our report comes as an indication of a study that was undertaken to model the effects, so that we had an evidence base on which to determine the impact. It illustrates that, while material, silt, debris in the bottom of the river channel does reduce the depth of water in the river channel, and therefore, when there is heavy rainfall, the water will come out of the channel at an earlier stage, once the water is out of the channel, the floodplain width reduces the impact and depth of water across the floodplain by only a very marginal effect. That is where the analysis that is necessary both for a particular catchment and then for sites within that catchment needs to determine the actual value of undertaking dredging work.

Q134 Chair: You probably will have heard that, in this particular case, the local drainage board felt that silt from the sea partly contributes to the silting of the Somerset Levels rivers Parrett and Tone. What impact can dredging of these channels have on coastal areas when there is a risk of tidal flooding and tidal surges?

Martin Whiting: Very minimal. Any dredging would remove a bar across the river width near its outlet to the sea. That bar would have collected material that was dropping out as the silt came down. The type of material that the sea would bring in would be larger-grained sizes, rather than the sediment of the earth particles that had been brought down the river channel.

The sea interface would actually push some seaborne material in, but the bigger impact, often, is the way in which it slows down the sediment that is coming down the river, because the incoming tide slows down the passage of the water. As the water slows down, the sediment drops out, and there is an apparent increase in sediment after the high tide. The high tide has not brought the material in; it has brought very little material in, but because it has slowed down the flow coming down the river, the sediment has dropped out there. Therefore, when the tide goes out, it is visible that there is more sediment. In some instances, there is an incorrect assumption that the sea has brought that sediment in, but all it has done, by the force of the water against the downriver flow, is cause that sediment to drop out.

Q135 Chair: In this report, did you look at all water channels, not just rivers? We just heard that there is as great a length of artificial channels as rivers. Did, in your study, you look at the impact on flooding of artificial manmade channels?

Martin Whiting: Both manmade and natural river channels were considered. The conclusions that we have come to we believe are appropriate for both types of channel.

Chair: That is very helpful, thank you.

Q136 Neil Parish: This is to do with using the silt as a fertiliser. There is an argument that sometimes it is treated as a waste and then it has to be hauled away. From your

point of view, do you feel we should, as landowners, be permitted to spread it on the fields? Do you see a problem with this?

Martin Whiting: It is standard good practice for all dredging works to have the first sample of material that is excavated from the river tested. Subject to the test results demonstrating that there is no pollutant material within that silt, spreading it on the land is a great idea. The temptation in some instances, however, has been to transport the dredged material the shortest distance possible. In some instances, it has been a case of an excavator working along a riverbank, excavating it from the river channel, swinging round to 180 degrees and depositing it. What you then create is a secondary bank of flood defence. That practice is not going to be beneficial, because you are going to totally interrupt the use of the natural floodplain. At the end of the day, the natural floodplain is there to do a particular job. The question on flood-risk management is how best you balance those two requirements.

Q137 Neil Parish: Therefore, what you are saying is that if it is dredged out and the silt is used as a fertiliser, it is spread across the land, not left in the form of a bank. I can see the argument for that. Also, surely, if you dig it out and leave it too much on the side of the bank, there is that danger it will go back into the river.

Martin Whiting: Yes, indeed, of course. The next flood event just puts it all back in the river. One of the challenges is that dredging is not in itself a sustainable solution. Why has the sediment dropped out where it has dropped out? There is some sort of change in the river channel cross-section; the flows are slowing down; the sediment is dropping out. It will continue to do that, and the fact that you take it out one year does not prevent it from coming back. As Mr Bradford was demonstrating, it is an ongoing commitment, so, to some extent, it is a less sustainable solution as a maintenance activity, although I totally accept the sustainability of the agricultural interest.

Q138 Mrs Glendon: How can wildlife and ecosystems be protected during dredging activities?

Martin Whiting: The ecosystems are going to be changed. As soon as you start doing some sort of manmade intervention, you are going to change the ecosystem. In some instances, if there has been a significant build-up of debris and silt and there is a lack of oxygen in the water, then by removing the debris and the silt, you may bring back more oxygen back into the river. That could be a beneficial impact on the ecosystem, but in general, as soon as you start doing some work, you are changing that ecosystem.

The challenge then is how to mitigate those changes. In some instances, it might be working only on one side of a river channel at a time. It might be working in sections, alternately, across the channel, so the first 50 metres is done from the left bank; the second 50 metres is done from the right bank, and alternating it along the river channel, to limit the amount of change that will occur because of that action.

Q139 Mrs Glendon: The report goes on to say that sensitive dredging can have positive impacts on biodiversity. How can it happen that environment and biodiversity are enhanced by dredging?

Martin Whiting: In some instances. The particular instance is where you are enabling more oxygen to get into the system, and therefore different plant-life, different invertebrates can then have a positive habitat. It may be that previous clean gravel beds, which are of

particular value to spawning fish, have been covered by silt, and by removing the silt and restoring that clean gravel bed, you then do improve the habitat and the ecosystem in that particular location. But, again, the assessment has to be carried out on a site-by-site basis, determining what the material is that we are taking out, what it is that we are uncovering, and a complete environmental impact assessment of just what the works are going to lead to.

Q140 Jim Fitzpatrick: Mr Whiting, you may have heard me asking our previous witnesses about the responsibility for maintenance and dredging allocated to the Environment Agency, local authorities and IDBs. I think I am accurate in saying that they were not really that worried about that; they were more worried about the amount of resource allocated to the task. Do you share that view, or do you have a different view?

Martin Whiting: In general, I do share that view. Madam Chairman referred earlier to the enmainment of watercourses that took place. That was, to a large extent, where local authorities were seen not to be giving the priority to a watercourse for flood-defence purposes that was really warranted, so the role local authorities now play, not in their lead local flood authority role but as operating authorities, has been amended. I think that is appropriate. Internal drainage boards have the direct objective of increasing the agricultural benefit of the land to the landowners whom they are serving. Therefore, their activities are not necessarily directly aligned with the Environment Agency, who are the flood-risk management authority for main river. There is a slightly different purpose, and, therefore, to change the responsibility for the activities would not help to clarify or assist in this particular situation.

Q141 Jim Fitzpatrick: Notwithstanding the different responsibilities, the relationship is a workable one.

Martin Whiting: I do believe so. Reference was made to the fact that some internal drainage boards are used by the Environment Agency to carry out works on behalf of the Environment Agency. I believe that, within local areas, there is a sound working relationship, and it benefits both parties.

Q142 Jim Fitzpatrick: I also asked about the seven landowner watercourse maintenance pilots. Mr Cator was very emphatic that they were very much in the right direction. The Chair asked, if it is so emphatic, whether they should be advanced and the process to roll this out accelerated. Do you have a view on this?

Martin Whiting: I do have a view. At the moment, they have a sound basis to take them forward. It was because they had a sound basis that they were introduced as pilots. There is not evidence, at the moment, to demonstrate that the sound basis is delivering benefit. In theory, it is there. There have been examples where it has reduced the time that it takes for individual landowners to get approval to carry out works.

It is important that a catchment-wide consideration of flood-risk management is taken into account. It is a bit analogous to somebody saying, “Well, we want better control of the traffic lights outside of Parliament Square,” with just the traffic lights at Parliament Square being under control, with no reference to the rest of the traffic and what happens there. Individual landowners taking responsibility for flood-alleviation work along their property boundary is grand. However, it must be seen on a catchment-wide basis, because otherwise there is the potential for unintended consequences.

Q143 Jim Fitzpatrick: So you do not think that is able to be demonstrated until and unless the pilots run their full course to allow that examination to take place.

Martin Whiting: I believe the programme is designed to enable that analysis to happen, and I would be supportive of them running their full course before having wider implementation.

Q144 Chair: Presumably, we are trying to prevent flooding.

Martin Whiting: We are trying to limit the flooding. We will never stop the flooding, and I think it is important that we recognise that there will always be a risk of flooding. The money that is put in by the Environment Agency—

Q145 Chair: Suppose I see in my area that there are self-planting willow trees growing very rapidly, that debris is being brought down from the hills, that surface water is feeding into a river, that the river is also silting up, which is preventing the water from flowing away, so in times of flood it spills onto the land or it goes into towns like Pickering and Thirsk. In my personal view, if we are trying to prevent flooding, I would say we should allow dredging to go ahead. I am slightly surprised by your answer to Mr Fitzpatrick's question that you cannot show there is evidence under these pilot schemes that a benefit has been delivered. The benefit is surely that there is no flooding. It is difficult to prove benefit if there has been no flooding.

Martin Whiting: Defra have supported a limited number of pilots. To use one or two case studies to say, "The pilots are successful; let's roll this out nationally," is not—

Q146 Chair: At the moment, the landowner is prevented from removing these willow trees and removing the debris from his land. Surely, if there are no disbenefits proved after six months, we should crack on with it, for the reasons Mr Bradford gave: that we are going to have an even bigger flood; it could be in my area next time; it could be in your area. We had it last year, and we are sick of it, so why can't we get on with the dredging?

Martin Whiting: Because, as you rightly said, Madam Chairman, after six months, all of the pilots can be reviewed, their effectiveness can be analysed and the good learning points can be distilled from the learning points that say, "Look, this just has not worked as we wanted it to. Why has it not worked in those places? Is it because of inertia of one party or another?"

Q147 Chair: But you have no evidence that they have not worked.

Martin Whiting: That is correct.

Q148 Chair: So why not let them go ahead in other parts of the country?

Martin Whiting: Because we have a limited number of pilots that were designed to run over a duration of implementation, and we want some evidence to say, "This is a really good idea. Let's do this across England."

Chair: There is no evidence that it is not a good idea. You have just said that.

Q149 Jim Fitzpatrick: Do you think the evidence over time might change?

Martin Whiting: I am sure it will. We will have evidence over time, and that is all that the pilots were designed to collect.

Q150 Neil Parish: To come back to the combinations, can dredging be used in a combination with more natural flood-defence techniques, such as planting woodland upstream and establishing flood storage areas, or are the approaches mutually exclusive?

Martin Whiting: As I said, we need to ensure that there is a catchment-wide approach to this and we understand that the actions in one location do not have a negative impact either upstream or downstream. If dredging is undertaken, and if we refer back to the Somerset Levels, do we fully understand what might be the implications downstream and on the towns there?

It is one thing to respond to natural events and to manage them in the best way we can, but if we start undertaking actions that are going contrary to those natural events and we make things worse, what would be the public response to that? It is getting the balance, but there is no reason to say, "Look, we are using dredging here; therefore we cannot use any other methods of mitigating and reducing the flood risk." They can be complementary.

Q151 Neil Parish: Would you also accept that, in Somerset, one of the problems is that it is not about the flooding per se; it is about the length of time of flooding? We are now talking about nearly two months; we are talking about a huge depth of water, greater than probably we have seen for many years. Are you not concerned by that? You have almost been saying that you are not really sure whether dredging does any good or whatever. This has been the acquired wisdom for too long now, if I may be too bold, and we do need to relook at it, because you cannot expect villages and even farmland to be flooded for two months. You do not only destroy the farmland; you destroy much of the nature conservation that you want to keep there.

Martin Whiting: Indeed, I do understand that, and Mr Bradford's point did emphasise that. Sorry, having followed it, I have lost the question.

Q152 Neil Parish: The question is the length of time, two months, and the depth of water has to be a concern.

Martin Whiting: Whilst I also recognise that Mr Bradford said it is the first inch and a half that is causing problems, we do need to recognise that we have had the wettest winter on record. That is no excuse, but that is a fact. Therefore, it is understandable that the flood water will stay longer than in anybody's living memory, because we have had unprecedented amounts of rainfall.

Chair: We have had no dredging either.

Q153 Neil Parish: Going back to the Somerset Levels, two years ago this coming summer there was a tremendous amount of water out there again, and also a lot of rotting of the vegetation because of the time of year. You can understand it from their point of view. We may say, and all the arguments say, it is the wettest January for 250 years, but people out there do not see it like that, because it keeps doing it, and it has been doing it more repetitively over the last 10 years in particular. That is where they believe more needs to be done.

Martin Whiting: I understand that Defra has made some more money available, and the Environment Agency are about to start dredging activity down there, but that goes back to the point about prioritisation of the maintenance expenditure, and how that is best invested. One of the points was that we needed to start pumping earlier; clearly, until the water levels in the receiving river that you are pumping to have started to go down, all you are doing is to circulate the river by pumping it out from one point into the river channel; it is going downstream and it is coming out on the bank again. There is, and will always be, a delay before the start of any pumping operation following the flooding, because you need the receiving water, where it is being pumped to, to actually lower.

Q154 Neil Parish: Of course, this particular river, the Parrett, is so hugely affected by tidal surge and the tides.

Martin Whiting: Again, we had significant events right at the beginning of December, but that followed on into the new year as well. That is the plug that is going back into the discharge point where the river is trying to empty out into the sea as rapidly as possible.

Q155 Neil Parish: One last question: in the Somerset Levels, what other flood-management measures would be beneficial alongside dredging?

Martin Whiting: The management of vegetation needs to be considered carefully, together with the point about management and operation of the pumping stations.

Q156 Chair: To return to your remark that you did not think dredging is sustainable, if I understood you correctly, did you mean dredging or did you mean managing vegetation and other maintenance as well?

Martin Whiting: No, just dredging, because it will continually return. Unless there is a change of the cross section of that river channel where the sediment is routinely building up, once you have dredged it, two or three years later you will have to come back and dredge it again. The repetitive nature is the element I considered unsustainable.

Q157 Chair: I have this problem with cleaning my house. I have no sooner cleaned my house than the dirt is back. My husband would say that is no reason not to clean. I am trying to get behind your argument for not dredging because it is going to come back, because that is no argument at all. You need to remove the silt so that we can make the water flow more quickly.

Martin Whiting: Madam Chairman, you clean your house at your expense. You do not clean your house at UK PLC's expense.

Q158 Chair: I used to and I got into trouble for it. Touché, may I say? The point is, whether you are streaming the vegetation or streaming the silt, what we are trying to do, I understand, is to make the water flow more quickly to protect the farmers and the residents. Now, there is a big debate about whether farmland should be covered by public money, or whether we should just have the public money protecting the houses that then will not get any insurance if they have been flooded. Are you saying that it is not sustainable, therefore we should not do it, or are you saying that we should not do it on its own?

Martin Whiting: I am saying that we should not do it on its own. Again, as Mr Bradford highlighted, it might be a beneficial use of silt that is dredged to construct embankments around the communities and not try to build up flood banks along the watercourse, but just to protect those communities. That, certainly, is a system that they have used in the Netherlands to some extent.

Q159 Chair: I would argue that local people should decide. You should go with the local knowledge. If you are building up the bank because it is not polluted in one area, that might work. If you take the stuff and create a little dam upstream, you could use it as clay to stop the water flowing. I think you said earlier it should all be part of a catchment system, so we are not disagreeing with each other.

Martin Whiting: No, not at all, Madam Chairman.

Q160 Neil Parish: I want to take up Mr Whiting on the fact that the Chairman cleans her house at her own expense, and we clear out the ditches at public expense. If the rivers and

seas flood, and so the railway line floods and everything else goes wrong, it causes a huge amount of public money to be lost, so therefore surely there is also an argument, at times, that dredging would be effective. If you take it across the Levels, it would cost £200 million to raise the level of that, whereas if we dredge the river, it may not flood.

Martin Whiting: It is a collaborative understanding of the benefits that will accrue from the maintenance work.

Chair: Mr Whiting, you have been very kind. We will not have you back, because you embarrassed the Chairman, but thank you very much indeed. We look forward to seeing you on another occasion. Thank you for being so generous with your time.

Examination of Witnesses

Witnesses: **Rob Cunningham** and **Martin Salter**, Blueprint for Water Coalition, gave evidence.

Chair: Good afternoon, gentlemen, and welcome. May I say it is a particular pleasure to welcome our former colleague, Martin Salter? Martin, would you like to introduce yourself, and Mr Cunningham, just to say who you are and where you are from?

Martin Salter: I am Martin Salter, formerly of this parish. I now work as national campaigns coordinator for the Angling Trust. I am representing the Blueprint for Water Coalition, which commissioned the CIWEM report. I am particularly interested, Madam Chairman, in introducing the Lower Thames dynamic into your debate, because that is where I was brought up and that is where I know best.

Rob Cunningham: I am Rob Cunningham. I head up the water policy team at the RSPB, and I am here representing the Blueprint for Water Coalition.

Q161 Chair: You have been very kind in sitting in for most of the afternoon, so you will have heard and be familiar with many of the issues. Are you agreeable to the fact that dredging should be done as part of a routine maintenance? When I say “dredging”, I mean dredging, de-silting, and maintaining by clearing the vegetation along the banks, such as self-growing willow coppice.

Martin Salter: In some circumstances. The reason that the CIWEM report was commissioned and put together was there was a worry, as indeed Richard Benyon said in his excellent article recently, that politicians were leaping to judgments in the middle of a crisis, fuelled by media, and understandably wanted to be seen to do something without looking at studies and without looking at evidence. The conclusion of our report is quite clear for people that have had a chance to read it: dredging is no silver bullet. It is entirely appropriate in managed, artificial landscapes, particularly in the context of the Somerset Levels. What worried us is that there appeared, I think probably more in the media than out of the mouth of politicians, this view that it was a silver bullet that could solve flooding problems the world over.

It clearly cannot. Dredging can make matters much worse. There is a finite amount of water in the catchment. It will find the lowest point, which is usually the sea or the aquifer. If we move the water down the catchment too fast, one person’s dredging can be

another person's flood, and we need to be extremely careful and approach this in an evidence-based manner, which is what our report sought to do.

Rob Cunningham: One of the dimensions that has been discussed a lot this afternoon is around funding. Maybe we will be asked a specific question on it later, but one of the key issues is how we prioritise what we do; where do we get the best bang for our buck? Dredging is part of that mix. You have to appraise what benefits accrue from dredging against the other things you may do, whether it is upland catchment work or hard defences. At the moment, the maintenance and capital works are not comparable, so we do not actually know whether we are doing enough channel maintenance. We do not know whether it is one way or the other. The figures are not comparable.

Q162 Chair: Looking for a moment, if I may, specifically at the Thames Valley floods, there were some allegations that a lot of it was because of the building on floodplains, and presumably often no SUDS being built at the same time. Do you think that was a fair comment?

Martin Salter: I am delighted you have raised that. Can I put on the record that we very much appreciate the efforts of MPs like yourself in this place who have banged the drum for SUDS, with limited success? I spent 30 years of my life fighting to defend the Kennet floodplains on the junction of the Kennet and the Thames. One of the reasons my town has not flooded is because those floodplains were—the clue is in the name, is it not?—allowed to flood. We did not have a tsunami of water coming through the centre of Reading because we resisted, time and time again, building on those floodplains.

What is really worrying is that, from the last figures I saw, there has been something like a 30% increase in applications to build in high flood risk areas. This is an area where we need more regulation, not less. I was disturbed to see, in the red tape challenge, that the Government were easing the requirement for environment impact assessments, making it more difficult for the Environment Agency and other authorities to resist development on the floodplain. A clear majority of new housing development over the last 15 years or so has been on the functional floodplain, sometimes against Environment Agency advice. I am very concerned, and I think all the coalition members are concerned, that we are going to see a weaker, not more strengthened, Environment Agency, and that we are weakening regulation at a time when we probably need it to be stronger to make sure the floodplains can do the job that nature intended, so I really do applaud your efforts in this regard.

Q163 Chair: I do not know if “retrofit” is the right word to use, but where developments have been built in inappropriate places on functioning floodplains, is it too late to go back and consider putting SUDS in place, and should there be an audit done to accommodate that?

Martin Salter: Rob knows better than I do, but Thames Water have a scheme in Counter's Creek in London at the moment, looking at retrofitting SUDS. Clearly, it is not an answer in terms of a big city like London; we are not ever going to be able to retrofit a major city, which is why solutions like the Thames tunnel are important. Certainly, in new developments, and certainly where there is the space to put in SUDS, balancing ponds and the rest of it, the cost of not doing so may be in excess of the cost of loading that on the local authority now.

Rob Cunningham: I would completely agree. Retrofitting of SUDS is not just in the floodplain, but in those places where there is surface water risk. I am delighted to see water companies increasingly looking at retrofitting schemes in those places where they are seeing their sewer capacity being overwhelmed. Unfortunately, retrofitting SUDS does not address the issue that, if you build on a floodplain, you still have a house at flood risk that is taking up the volume of water that would otherwise be standing on it in a flood, so, in terms of building on the floodplain, it will offer some benefits, but it will not undo the damage.

Q164 Chair: We are going to look in a moment at the impact on wildlife and ecosystems but, Mr Salter, you referred to the role of the Environment Agency. I certainly think there is an argument that the rules changed in the 2000s so that biodiversity became the priority, and the drainage boards carried on dredging at the right times of the year, obviously, to avoid nesting birds, but the word went out on main watercourses that the Environment Agency were not to continue doing the dredging and maintenance. Do you think that is a fair argument?

Martin Salter: No, I am afraid I do not. I am going to disagree with you there. We shared Radio Berkshire this morning, as it happens.

Chair: I am sorry I missed you.

Martin Salter: There you go. There was no diktat from Government at the time. There was a preference from the then chair of the Environment Agency, but there was no political decision to stop dredging. I think it is regrettable if we do try to politicise this. Dredging on the Thames stopped in the 1980s, and it stopped in the 1980s for a very, very good reason: it had been tried for many, many years, and when the buckets were going down into the hard bed of the river, they were pulling up bronze-age relics. That river has not changed in 3,000 years; it self-scoured, so it was a largely pointless exercise. Dredging stopped in the 1980s as, in any way, shape or form, a flood-risk management activity, and it was purely done to maintain the navigation. So limited dredging still occurs, but to maintain the navigation.

This may be slightly out of order, Madam Chairman, but we do hear a lot of armchair hydrologists out there, and it is understandable. I have an aerial photograph, which I will leave with you for the purposes of your report, of the British Isles on 16 February. This plume of silt is beyond Wales. The amount of Herefordshire and Worcester that was transported into the Irish Sea by the self-scouring power of the Severn and the Thames in roaring flood is more than any dredger could ever move in 100 years. Our rivers are dynamic systems. They will do what they want to do. We can tame some of them, and we can manage some of them, particularly in reclaimed land, but it is often a fool's errand to seek to dredge a river that will self-scour naturally. In the Thames catchment, we protected something like 3,000 properties by the creation of the Jubilee River, which took flood water away from the properties.

I will just make this last point. The other day, I asked the Environment Agency flood defence people to do me an assessment of the impact of dredging the Thames catchment, of going back to the pre-1980s policy. The results are fascinating; if I could just read them into the record, I would be really grateful. The average daily flow on the Lower Thames at Windsor is 65 cubic metres per second. At the height of the flood, for 44

days it was averaging 280 cubic metres per second, so more than four times the flow. The daily flow coming down at the flood peak is 5.5 billion gallons of water.

Forget the fact that that can move a lot of silt, but the impact on those Lower Thames communities was cataclysmic, and this was a record level of flooding. Had we been dredging the Upper Thames catchment, had we been dredging those tributaries, had we been putting some dredging protection around Oxford, for argument's sake, we would have been sending down 10% extra water onto those already flooded communities in the Lower Thames. That equates to 550 million gallons extra a day. That is the point. There are the unintended consequences of dredging, and you have to look at the management of the catchment as a whole. We would have made a bad situation much worse and put anything between six inches to a foot of extra flood water in people's homes.

Q165 Chair: I think you would accept that what might work in the Thames may not work in other catchments. We should not just look at dredging alone; we should look at de-silting and removing the vegetation as well. I would argue you should go with local knowledge

Martin Salter: This is local knowledge.

Chair: There is no one-size-fits-all.

Martin Salter: I could not agree with you more, Madam Chairman. This is from Dick Greenaway, who spent 30 years as the head surveyor on that river for the old National Rivers Authority and Thames Conservancy. This is local knowledge in the raw. The point I am making is that, just as the Thames is not the template for the Somerset Levels, the Somerset Levels are not the template for the Wye or the Severn or the other natural rivercourses in this country, and that is the huge danger in this debate.

Rob Cunningham: You asked quite specifically whether it was a shift from the National Rivers Authority to the Environment Agency that had stopped dredging. I would say, actually, it was more than anything else an economic policy around protecting property. I do not know whether you have had them as witnesses; I do apologise. A lot of that is around how we maintain universal private flood insurance. There is a deal, as you will be aware, around maintaining a statement of principles, I think it is.

Chair: We are looking at that separately.

Rob Cunningham: The important thing is that part of that deal is maintaining, improving and reducing flood risk to property, so there is a very clear objective around that in the current and previous funding systems.

Chair: With the greatest of respect, I accept that for capital expenditure, but I do not think it is by any means so clear as to revenue and maintenance expenditure.

Q166 Neil Parish: I want to come in on the concept that a lot of our properties, towns and cities in the UK are in floodplains, because the rivers were used to navigate and trade. What do we do in the long run? Is your argument that we just abandon all these places? If we do not want to clean out the rivers, do we raise the banks of the rivers? We do not want people to flood. I'm sorry, but I don't care whether it is environmentally friendly or not; at the end of the day, people do not want to be flooded. Therefore, if the argument is not to

dredge out the rivers, surely we raise the banks, but the acquired wisdom does not seem to want to do either. So we just allow everybody to flood, do we?

Martin Salter: Nobody has said that, and this report does not say that. You know that this report does not say that, Mr Parish.

Q167 Neil Parish: What is the answer? Do we raise the banks?

Martin Salter: We support the things like the Jubilee River, which is an engineering solution. We have raised banks here in London. If we are to protect people from flooding, though, and if we are to accept, as Madam Chairman has said, that there are incredibly effective upland storage schemes, that will involve some flooding of some land further up the catchment in order to protect greater numbers of people. Is it not perverse that we pay I do not know how many billions in common agricultural payments, and we incentivise, in some cases, farming practices that can make flooding worse?

This is a holistic approach we have to have here. A lot of this is about land management. Part of that map you have in front of you is to do with the way fields are planned. Part of that is to do with the failure to put in proper buffer strips. It seems to me wrong that one should want to pay farmers not to allow their cattle to tread down the side of the bank and move silt to the neighbouring farm downstream. We have all got to accept responsibility, either through the taxes that we pay, through the agencies that we employ and resource to support us, or the capital schemes, in order to have a source-to-sea solution. It is not just about banks; it is not just about dredging.

Q168 Neil Parish: Where you do actually think digging out the rivers and some dredging would do some good, is it right that, provided it is non-contaminated, that silt is then used a fertiliser and spread on the land? Have you got any problem with that?

Rob Cunningham: Ascertaining it is not contaminated is a really important point, because no one wants to be poisoning their land in the long term. Do we have a problem with it? There is the issue of loss of floodplain storage if it is disposed on the floodplain, so that has to be thought of, and, again, the perverse impact. If you raise your floodplains, you lose flood storage; that is one of the issues. We heard already that you want to be very careful that you do not put it in a place where it will simply end up back into the watercourse and be your next year's maintenance programme.

Long term, if you are using it, you have to be thinking about the point that was made earlier that it has nutrients in it. If it is to benefit agriculture, you want to be very careful. If you put phosphate and nitrogen-rich sediment on a very precious grassland ecosystem, that will wipe it out in very short order. It is just recognising its properties, and making sure it is part of part of your nutrient budget so you are not just piling more and more nutrients on your soil. There have been places where capturing topsoil before it actually reaches a watercourse and then recycling it back onto the land is part of the overall scheme design. At the end of the day, silt is topsoil.

Q169 Neil Parish: We are only suggesting spreading this very thinly over the land. In times of flood, surely nature has been doing that for hundreds and thousands of years, has it not? Isn't that why those valleys are fertile in the first place?

Rob Cunningham: Absolutely, and parts of Humber were warped, as they called it, quite deliberately, to bring nutrients onto the landscape. The question is about being very conscious of the choices you are making, also bearing in mind the outcome of the dredging that you are undertaking. Is it land drainage, or is it flood-risk management?

Where are the benefits accruing from your actions? In lots of circumstances, dredging will lower water levels locally. That will benefit land drainage; it may have no benefit for flood risk, because, in the large events, the water will come out of the channel anyway.

Q170 Neil Parish: Therefore, you oppose land drainage, then, do you?

Rob Cunningham: I do not oppose land drainage. There is a question of appropriateness in terms of the land use, and also a question over who pays and who benefits from that. There is a very clear position at the moment that flood-risk management is different from land drainage; flood-risk management is about protecting people and property from extreme events. Land drainage is about protecting land from annual and very frequent events.

Q171 Mrs Glendon: Can I ask you both how wildlife and ecosystems can be protected during dredging activities?

Rob Cunningham: First of all, we have to differentiate between natural watercourses and non-natural watercourses. I would just like to state for the record there is a wealth of evidence that will show that, if you have a natural river system where the connection between the river channel and the floodplain has not been altered either by defences or dredging, both the floodplain and the river ecosystem are richer and more diverse. In those circumstances, talking about protecting it is a bit of a nonsense; it will change, and you will change it, and it will be degraded. That is the natural watercourse.

In terms of artificial or heavily modified watercourses, it has already been touched on by my colleague from CIWEM; there is extensive literature out there, joint guidance from the Association of Drainage Authorities and Natural England about sensitive approaches to river maintenance and channel maintenance. It is really critical, though, that it is site-specific, and you understand the sensitivity of the channel and the ecosystem you are dealing with.

Martin Salter: I know a bit about fish; it would be sad if I did not—well, it is sad that I do. A lot of studies have been done before and after dredging. The Lower Great Ouse is obviously a heavily modified system, and it comes down into the Fens. It is not dissimilar to parts of the Somerset Levels. We have seen there, with the heavy modification and big dredging projects, at times, often the extinction of some fish populations, particularly those that need fast-flowing water, those that need clear gravels on which to spawn.

There was a study done in 1985 on the last bit of dredging that took place in the Thames catchment, which was on the River Thame, a tributary of the Thames in Buckingham. It looked at the non-dredged versus the dredged impacts. We saw the biomass of common species like roach and chub reduced by 31% and 64% respectively. Even after many years of attempts to recruit, those fish were never recruited successfully, so, yes, it can have a significant impact. It can have an impact on water voles. It can have an impact on white-clawed crayfish and obviously the food chain that depends upon it.

That said, it is about making choices. If the dredge is going to make a difference, if it is part of land drainage, for example, then there is a consequence, but there may be a benefit. If it is part of flood-risk management, we would argue, dredging is very rarely, apart from in artificial landscapes, a sensible flood-risk management tool, and at that point, one also has to look at the environmental considerations.

Q172 Mrs Glindon: Do you agree with the *Floods and Dredging* report that sensitive dredging can have a positive effect on biodiversity?

Martin Salter: I have never seen it.

Rob Cunningham: Again, it comes back to exactly what kind of system you are dealing with. If you go to some places like the Fens, which would, historically, back in the day, have been a large patchwork of wetlands and dry land, through drainage now the wetland interest is really in the ditches. The ditches are essentially the last refuges of wetland biodiversity that would have been much more widespread. Those ditches are not subject to the kind of natural shocks—the big floods, the herbivores and all the other things that would have created them—so, in those circumstances, dredging plays a role. If those ditches silted up, you would lose your wetland interest, but the really important thing is, you have to do it sensitively. If you dredge that ditch or watercourse from end to end, without any kind of programming or whatever, it would be heavily degraded. There are ways, and, like I say, it is widely accepted and there are industry standards on these things. It is not a big issue.

Martin Salter: Can I qualify my rather glib answer, Mrs Glindon? I have never seen a natural watercourse improved in terms of biodiversity as a result of dredging. However, if one dredges a channel, be it many years ago the Huntspill or the King's Sedgemoor Drain, one can create a wonderful aquatic environment, so there can be upsides. It is not the act of dredging; it is the creation of a new watercourse that dredging delivered. Perhaps that is a semantic argument, but hopefully I get the point across.

Rob Cunningham: The Jubilee River would be an example.

Q173 Jim Fitzpatrick: Mr Cunningham and Mr Salter, you will have heard me asking previous witnesses about the division of responsibility for maintenance and dredging between the various authorities. Have you got a view on whether the responsibility is an issue, or is it, as the previous witnesses were saying, about the level of funding for the task in hand?

Martin Salter: The trashing of the Environment Agency on television was a low point in British politics, and the Prime Minister was right to move against that. Chris Smith was right when he said that most of the people working in flood defence know 100 times more than any politician. Richard Benyon was right to warn against politicians trying to be armchair hydrologists, so I would like to just put that on the record. I also believe that climate change is happening, that we are going to be having a lot more of these flood events, and that we need a stronger, not weaker, Environment Agency.

In terms of the division of responsibilities, Pitt was quite clear. What worries me, Jim, on the back end of this, is that we will end up with more reviews and more reports, but we are not very good—I think Madam Chairman made this point on radio this morning—at implementing the reviews we have. Local authorities were given a stronger role under Pitt, but not the resources to carry it out. I would hope you would, in your recommendations, focus on how local authorities are actually supposed to deliver the new responsibilities that Pitt gave them.

In my area, if I may, we nearly had 70,000 people without power, purely because West Berkshire Council's emergency plan—no fault of their own, I am sure—did not listen to the local people. The local person, in this case, was Del Shackleford, the fisheries manager for Reading & District Angling Association, who was trying to tell the fire brigade, the police, and the local authority that the reason this substation was being surrounded with water coming out of the gravel pits was not about dredging a ditch in front of it. It was the fact that there was a soaking great breach in the River Kennet a mile upstream, and millions of gallons of water were pouring in and flooding that whole landscape. It was not really until gold command had run out of ideas and phoned up the local fishery manager that the army came in and plugged the breach, and despite the fact that the Kennet continued to rise, the substation dried out.

If the local authority had had a better view and better resources, understood how water moved through the catchment, and listened to Del Shackleford and the local people in Reading, that emergency, with 70,000 people without power at the height of a flood, could have been avoided. As it was, we did not have the outage, but we were that far away from it.

Rob Cunningham: To go back to the point I made earlier, one of the issues we have is that there is no clarity over the benefits of the maintenance programme and the capital programme, and how one would balance those two things. Then there is an awful lot of confusion around the funding of the various flood authorities. There is a lot of focus on the Environment Agency's budget, but, obviously, local authorities are supported through central taxation as well. They in turn support internal drainage boards, as well as undertaking their own work. On average, something between half and three-quarters of IDB income is through special levy. The funding rules for that are different to the Environment Agency's funding rules. I have no idea how the local authority make their decisions between funding a school that definitely needs funding this year and a flood that might happen at some point in the next 100 years. Between the capital and the maintenance, and between these local and central Government funds, how that is all prioritised to best effect I do not know, but it just strikes me as being very complex and opaque.

Q174 Jim Fitzpatrick: So do you think the reductions in Environment Agency staff—there were one or two comments earlier on—are being balanced out by the other agencies being able to fill the gap, or do you think those staff are not needed? Is this an issue that concerns you?

Rob Cunningham: One of the comments that has been made is that the cuts do not affect frontline staff. I am not sure that is true, but if, as I do believe, climate change is happening, if we believe the Met Office that what we are seeing is entirely consistent with what that kind of change is going to bring us, if we look at the reviews we have had, like the Pitt review, one thing we really need to do is think strategically and long-term. It is absolutely no good cutting the Environment Agency to the point where it is an emergency response vehicle. It needs to be thinking long-term, and have the resources to do that.

Q175 Chair: At the moment they are trousering the resources and not doing the work, so there would seem some sense in reverting the money back to the drainage boards to do the work.

Rob Cunningham: It is interesting that what was not discussed earlier was the fact that the Environment Agency also pay the IDBs, so there is a circularity of funding. I think the balance is slightly in favour of the IDBs—that the Environment Agency gives the IDB slightly more money.

Q176 Chair: Given the figures that we heard on the record from the drainage boards and the district councils together—almost £1 million, £800,000 a piece, for two rivers—it is a sizeable sum of money to go to the Environment Agency for no apparent work to be done.

Rob Cunningham: The Environment Agency is big enough and ugly enough to defend itself, but when I walk along those rivers, I see Environment Agency assets. It is not as though they do not operate in that area. They may not have done dredging, but they do other things. It is entirely appropriate to ask, “What do you get for the money?” and why we have this rather convoluted system where the IDBs pay the Environment Agency a sum of money, and then through another arcane process the Environment Agency pays the IDBs money, and no one is quite clear who is getting what for what.

Q177 Jim Fitzpatrick: Finally from me, you already commented a wee bit about the role of farmers and landowners. You may wish to elaborate on that. Specifically, on the seven landowner watercourse maintenance pilots, you will have heard that Mr Whiting disagreed with the initial panel as to whether or not the pilots should be accelerated to conclusion and rolled out, as opposed to allowed to run their course for all the evidence to be heard. Do you have a view as to which of those two is more appropriate?

Martin Salter: On the Environment Agency point, it is a myth that flood staff are being protected. There is a huge amount of backfilling taking place. You might table a parliamentary question asking how many fisheries staff, since Christmas, have been helping out in flood defence. A weakened Environment Agency is a weaker flood defence operation, full stop. I have no problems, Jim, with stripping out waste, reorganising the funding streams or whatever, but we need troops on the ground if we are to be able to deal with this situation.

In terms of the pilots, I think the pilots are completely irrelevant, frankly. If the problem was too much regulation—and it is the same regulation when we go into a river system wanting to do habitat restoration; we have to get consent—and if that consent process was too slow for the farmer to de-silt or the environmental group to do habitat restoration, let’s have a fast-track consent process. We did not need these pilots. One of the last lot of pilots that took place in 2011, on the Windrush, was abandoned because it was going to cause more flooding downstream. Water flows downhill; there is always a consequence of doing something in some part of the catchment. I am very, very suspicious of meddling around with bits of the catchment and not looking at the issue as a whole. I really do not think these pilots are addressing the issue. The issue is better, cleverer regulation and consent processes, not pilots, which are not going to teach us much, in my judgment.

Rob Cunningham: If I could add to that, actually, the Water Bill going through Parliament at the moment, specifically in the environmental permits and regulation section, offers the opportunity for the Secretary of State to table regulations that would create a hierarchy of consenting. But let’s be really clear: these pilots are not about whether or not landowners need to get a land drainage consent. They can still apply for a land drainage consent. It is about land drainage, really.

This was one of the things from the CIWEM review, but I think even if you just do a thought experiment, you need to think about dredging at a catchment level. If you really believe that moving water through the system in this particular place is critical to flood risk management, that has to be more than an individual farmer working on their piece of land. Yes, that might improve their land drainage, but it could have negative downstream impacts. Let's face it, land drainage consenting is also important; land drainage consenting far predates all the environmental legislation we are talking about. It was about protecting people against flood risk. It had been turned into the tool we use for environmental protection, but it is about protecting people downstream from the unintended consequences of land drainage as well.

Chair: Apologies; I am going to slip away. Jim Fitzpatrick will take the Chair.

Q178 Neil Parish: I will word my question quite carefully. In rivers that are manmade, where dredging is seen to do some good, can you then bring in planting of woodlands upstream, establishing flood storage areas, as well as clearing and dredging the rivers, or are those two approaches mutually exclusive?

Martin Salter: Absolutely not. There was an excellent little myth-buster on dredging by the ADA, which made it quite clear that dredging is one tool in the toolbox, and no more than that. The Prime Minister said in his own constituency, on the River Windrush, since we were talking about that, that wholesale dredging of the Thames catchment is clearly insane, and would endanger the fringes of London, as we have demonstrated.

You will always have pinchpoints, though, so there is always an argument for ensuring that there is sufficient clearance under the bridges; there is always an argument, as well, where we have the opportunity to store water higher up the catchment, to do so, to reconnect that river with its floodplain. It may be we have to pay farmers to do that. There is always an argument for improved farming practices, so we are not planting crops like maize, which compact the soil and cause all sorts of problems, so it is a whole suite of solutions. Dredging has a small part to play in the natural watercourse. It is not completely ruled out in our view, but it is a catchment-based approach. We are talking about water that is trying to get to the sea, here. We are not talking about an isolated problem in one farm, one village or one town.

Q179 Neil Parish: Now Jim is in the Chair, I am going to carry on with my previous question. Taking the logical conclusion that across the country many of us live on a floodplain, if the rivers cannot be dredged, or you maintain dredging the rivers will not do any good—in certain rivers, I would accept that—then surely you raise the banks. What you cannot do is allow people to be flooded, and infrastructure to be flooded. You also have to stop your sea coming in, because that is what the Dutch do. They do not actually retreat from their country, because they would not have a country, and I am not exaggerating with most of the Netherlands. Therefore, what are we going to do about it? We are not going to walk away from the Thames Valley; we are not going to let all those people flood; we are not going to let London flood; we are not going to let the cities flood, so what are we going to do about it? If we cannot dredge the rivers, are you against raising the banks to stop it?

Martin Salter: We build things like the Thames Barrier, which has been fantastically successful. We build things like the Jubilee River. We have high walls here.

We have hard engineering solutions. It is not all about pink, fluffy bunny solutions further up the catchment.

Neil Parish: Not all bunnies are pink, by the way.

Martin Salter: It is a combination of both, Mr Parish, and I think you know that answer.

Rob Cunningham: Can I make one factual correction? The Dutch do retreat. The Dutch have one of the largest nature reserve cum flood-storage retreats in, probably, the world, certainly Northern Europe, called Oostvaardersplassen. It is so large, they run wild herds of konik ponies, which is the closest relative we have to pre-tamed ponies. It is a massive area. It is a huge biodiversity resource. It is a huge industry in terms of tourism. So they do do that.

If you cast your mind back to the previous Government's Making Space for Water strategy, they shamelessly stole that title from the Dutch. Making space for water, setting back the dykes, re-engineering farming, moving farms wholesale out of the floodplain is a really big part of their strategy. In terms of the overall answer, of course we defend those places where we need to defend them. London has some of the highest standards of defence in the country because the economic consequences of not doing so are huge. Somerset Levels and Moors have not qualified under the existing rules for that level of investment. One of the really interesting questions that the logic of this leads us to is: what do we do for communities and landowners in those places where flood risk will inevitably rise?

Under any funding scenario, there will always be difficult questions. The number one gap in policy that no one has really filled is the adaptation and resilience funding. Basically, at the moment, the Environment Agency has a set of rules laid down by Defra, and it goes along and says, "Okay, do you or don't you qualify economically?" If you do, they run all their clever spreadsheets, and they fiddle it a bit sometimes, and they come up with an answer, and if you do not, all they do is they walk away. I personally think that that is unacceptable. It is not necessarily a flood-risk management issue, but there is a definite question of social justice, and a definite question about what you do for those communities. This was completely foreseen, unsurprisingly, by the Foresight report from 2004 where it talked about how we adapt and how we avoid this kind of outrage.

We can change the funding rules; we can theoretically engineer just about anywhere not to flood, but, at some point, it will become unaffordable. When it becomes unaffordable, what do we do for the people left behind? That is the number one question that we need to tackle.

Q180 Neil Parish: As a final question on the Levels, if we were to get funding together for a tidal sluice, say at the Bridgwater side of the Parrett, in order to stop that tide driving the fresh water out and flooding further upstream, which potentially floods Bridgwater and Taunton eventually, would you have any objection to it?

Martin Salter: I can see no objection to it. I am not a particular expert, but I have certainly been involved, along with my colleagues and RSPB, in helping make the case against the Severn Barrage, in favour of some of those more modular solutions. You have some interesting options in the Severn, and I can see no objections at all. In response to

your question on Holland, just for the record, the Dutch are not all about dykes and dredging. They are quite an interesting mixture. They have encouraged floodplain development, advocated by the Dutch Government, for the stimulation of the floodplains of the Rhine and Meuse, to increase them by reducing agricultural land and allowing the rehabilitation of natural grasslands, wetlands, dynamic braided or secondary river branches. The Dutch adopt that suite of suggestions. It is not just about dredging; it is not just about dykes. It is also about uplands, storage and reconnecting rivers to their floodplains.

Q181 Neil Parish: You also have to accept that, when you drive through the Netherlands, you are driving up here, the water is down there and they still manage to keep that clear, and they manage to pump their water into the rivers, which are well above land level. They may be retreating in various places, but they are not retreating from land like we are retreating from; they are retreating from land that is well below sea level, because a lot of their land is well below sea level.

Martin Salter: Mr Parish, there are 3 million people who go fishing in this country. There are 1 million members of the RSPB. We love our natural rivers in Britain, and they are valued. If a strong enough case can be made for turning some of them into soulless drainage channels in order to protect certain communities, fine, but the idea that this becomes a wholesale policy without political consequences is an idea for the birds and for the fish.

Rob Cunningham: The Dutch spend at least twice as much per GDP on their flood risk management, and even then they are retreating from places. It is really important that it does not matter how much money you choose to throw at this; there will be tough choices to make. In terms of the tidal sluice, surely the answer is: what is most effective? What can we afford; what is the most effective; who pays; who benefits? Those are really clear questions we need to ask. If, at the end of the day, a tidal sluice on the Parrett is the only solution, it is affordable and it is necessary to protect vulnerable communities, then that is a decision, but we have to be really clear about the choice we are making, and whether or not there are other alternatives.

Q182 Jim Fitzpatrick (in the Chair): Gentlemen, thank you very much for being here today with our other witnesses. We are very grateful for your time and expertise. I am not sure I entirely agree with Mr Cunningham's description of the last Government shamelessly stealing anything—of perhaps proudly borrowing; copying; trying to do the best; looking at European experience.

Rob Cunningham: It is a really good strategy.

Jim Fitzpatrick (in the Chair): It is a good strategy. What we need to do is to copy the success. Thank you so much for being here. I am very grateful to you.