

Written evidence submitted by the Chartered Institution of Water and Environmental Management (FLO0104)

Flooding

1. CIWEM is the leading independent Chartered professional body for water and environmental professionals, promoting excellence within the sector. The Institution provides independent commentary on a wide range of issues related to water and environmental management, environmental resilience and sustainable development.
2. We welcome the opportunity to respond to the Committee on its inquiry on lessons from this winter's flooding. This response has been compiled with the assistance of a wide range of our members, who are expert practitioners in the field.

Response to inquiry questions

Are the current national and local governance and co-ordination arrangements for flood and coastal risk management in England effective?

3. There is a complex matrix of organisations involved with managing FCERM in England. This reflects the very real complexity of flooding and flood risk and there is considerable logic to the range of organisations – risk management authorities (RMAs) – involved. However, this is also the product of a shifting of responsibilities of those organisations over time and an era that focussed on operational response and less on strategic and connected planning.
 4. The current complex governance landscape can be difficult for stakeholders to work with. Because of this, the Environment Agency (in England) has a strategic oversight role in relation to all flood risk, even if it is not directly responsible for managing it in specific circumstances.
 5. This complexity is commonly referred to as a source of concern and frustration. The range of organisations with different standards, funding models, budgetary and planning cycles and powers can make it difficult and complicated for organisations to deliver on the ground.
 6. Without significant change to powers and funding levels across them, there has not been the step change required to make the management of total flood risk more effective. This is not to say that the principle is wrong; but integrated working between a range of bodies takes resource which has hitherto been insufficient or has been reduced over the years as budgets for various risk management authorities have been squeezed. The mandate and means for authorities to cooperate is vital to a coordinated approach. We are therefore concerned by proposals in the planning white paper to remove the duty to cooperate between local authorities on planning.
-

7. Part of the fragmentation and complexity challenge is caused by different responsible sectors not having funding and/or planning cycles that align or are sufficiently flexible to align to, FCERM planning or funding cycles. The necessary coming together of public and private organisations creates challenges through misaligned requirements for governance (including procurement), spending (especially annualised budgets) and urgency to act.

8. An example may be given as:

A local authority obtained funding to investigate a local flooding issue, with a second line on the capital programme to construct a tidal flood scheme within the current 6-year funding period 2015-2021. Investigations identified that a water company asset was key to resolving the flood risk issue, and the local authority opened discussions with the relevant water company about undertaking a partnership project.

However, the timing was too late into the most recent cycle of water company planning for the project to gain approval by OFWAT, therefore it must wait until the next round (2025/6) to obtain funding. The outcome is that the flooding issue is not addressed in a timely way and the flood risk remains. Similar challenges exist for other risk management authorities and infrastructure providers such as Network Rail and Department for Transport.

9. The Defra FCERM policy statement and the Environment Agency's National FCERM Strategy for England represent a welcome step forward in vision and ambition, reflecting climate change risk and putting adaptation at their heart. Much hinges on the action plan that is due to follow the FCERM Strategy. This should be detailed, SMART, and should strongly inform the investment made against the significantly larger capital settlement announced earlier in the year.

10. In the context of land use planning, there has always been a challenge with local plans only focussing on the immediate (20 year or so) future, with insufficient consideration of risks on the time-scales that shoreline management plans do (which consider issues across a number of 'epochs'). This is indicative of the insufficient long-term cross-sector sight of infrastructure plans in areas to allow this strategic alignment of schemes to occur as readily as it could do.

11. The Environment Agency have been looking to address these kinds of challenges by thinking about project needs in the next 50 years and identifying where there are likely projects in an area identified 6+ years' apart, which could be delivered together as part of one project to achieve efficiencies. This approach is very welcome, however it does not include projects others may be considering in the same areas. The challenge may be compared to encouraging utility companies to align road works to dig a hole once; in practice the range of different interests, circumstance and drivers make this difficult to achieve in practice. Very significant savings in cost, environmental impact, disruption and resources have been demonstrated when plans have considered cross-sector projects within a geographical boundary. Governance structures should facilitate such coordinated approaches wherever possible but this requires strong strategic coordination.

12. Even within single sectors there are significant gains to be made by working to programmes driven by efficiency as opposed to some of the other criteria traditionally considered. Longer-term commitment to funding of programmes is also essential as are arrangements to provide 'bridging' of timing differences in the availability of funding from partners. The Environment Agency's Thames Estuary 2100 Programme is an example of the benefits of efficiency driven programming with the flexibility offered by longer-term funding commitment.
13. Whilst the current Partnership Funding policy is part of what has encouraged good partnership working between government, arm's length bodies, local authorities, and infrastructure providers it is arguably not the main thing driving partnership working. This comes from a growing recognition of the benefits of coordinated working to individual organisations that, alone, either lack the resources or see flood risk management as a distraction from core business. Opportunity to share in the expense in managing a cost or risk to a business is an incentive.
14. Whilst the principle of partnership funding (and working) is entirely valid, in practice the policy can result in very complex funding arrangements for schemes where money is coming from many different sources. Project teams and the lead delivery authority can spend a lot of time and money seeking partnership funding and then managing the financial agreements, so the total cost to the various parties involved in terms of time and resource invested in a project is unlikely to ever be accurately recorded.

What lessons can be learned from the recent floods about the way Government and local authorities respond to flooding events?

15. It may still be too early to draw a complete and accurate picture of where and how things might have been done differently, or better during the winter floods. The use of temporary defences has proven effective in protecting a large number of properties which would have otherwise flooded. This follows previous moves away from temporary flood defences (following the floods of 2007) when operational difficulties were experienced, and temporary defences were viewed as storing up a liability for flood risk agencies.
16. Some of the temporary defences that were deployed were exposed to conditions close to exceeding their design capacity. It is recommended that a lessons-learned exercise on temporary defences is undertaken but that this also considers experiences prior to the most recent flood events. A 'dam failure' scenario must be avoided, for example.
17. The importance of reliable weather and flood forecasting was once again highlighted. This appeared to provide good warning overall, but questions remain about how the uptake of flood warning services can be maximised.
18. The deployment of our military services featured high in the coverage of our response. Whilst this can offer vital resource in an emergency scenario it does point towards a lack of capacity within risk management and emergency response authorities, in the face of prolonged extreme events. Whilst this may be a reality in the most extreme events it cannot be relied upon as the answer or be overlooked in the lessons

gathering exercise. To some extent the need to deploy our military services as emergency responders needs to be seen as a systems failure.

19. The responsibilities of local authorities in responding to flood events are commonly misunderstood. They do not have a responsibility to respond to a surface water flood event in the same way that the Environment Agency responds to a fluvial or coastal event. Additionally they may not typically have the tools, resources or expertise to manage flood waters in an emergency. This creates a level of inconsistency in the response a resident receives for flood events depending on the source of the flooding, which is potentially unequitable (to those effected, a flood is a flood, whether a fluvial, surface water, groundwater or sewer flood).
20. Such circumstances reflect back on governance and responsibility, and it is important that as far as possible flood response transcends any distinction between types of flooding and those responsible for planning and implementing measures. The Environment Agency, lead local flood authorities and other risk management authorities must as far as possible be able to operate as a coordinated pool of resource.
21. Communications between agencies can be fractured if a major incident is not called by the Local Resilience Forum. In an emergency, agencies convene and have very efficient, formal channels. However, if no incident is called the traditional communications channels (or silos) exist and this can be very reliant on individuals, which is not a robust situation.

Given the challenge posed by climate change, what should be the Government's aims and priorities in national flood risk policy, and what level of investment will be required in future in order to achieve this?

22. We welcome the policy direction established by the government's FCERM policy statement and the Environment Agency's FCERM Strategy. We fully support the vision of the strategy for a nation ready for, and resilient to, flooding and coastal change – today, tomorrow and to the year 2100. It is essential that Government policy underpins this aim across all sectors and areas of critical infrastructure. This will require common threads of policy in all government departments including Defra, BEIS, DfT, MHCLG and Treasury.
23. Government must make flood and climate resilience an intrinsic part of major policy initiatives, particularly relating to housing, planning, land use and agriculture. Government has pledged, in advance of the COP26 climate change summit, to “put adaptation at the heart of everything we do”. The reality is a long way from this, as highlighted frequently by the Committee on Climate Change's assessments of the preparedness of the UK for the impacts of climate change.
24. The National Adaptation Programme is currently not an overarching framework driving adaptation and resilience across the economy, as it should be. The associated Adaptation Reporting Power under the Climate Change Act is not utilised, so reporting authorities do so voluntarily and there is great variability in the scope and quality of

the adaptation reports that they submit. Key sectors are not reporting – housing and local authorities, for example, have not reported to date.

25. With flood risk being the highest on the Climate Change Risk Assessment, this kind of lack of strategic consideration of adaptation and resilience across government cannot continue. Government's priority on national flood risk policy should be to ensure that it is not regarded by many departments as Defra or the Environment Agency's problem. All should take ownership of understanding flood risk in their areas of responsibility and improve their engagement with relevant RMAs as well as their engagement with strategic level adaptation planning.
26. Government also urgently needs to address some very difficult challenges concerning planning a future for communities and industries located in places that are not sustainable in the face of inevitable climate change. The UK must become leaders in strategically planning solutions to ensure that no communities are abandoned and left behind. This must form a crucial adaptation plank in ensuring a just transition on climate change.
27. Other difficult decisions need to be addressed including the ongoing cry for precluding building in active flood plains and other areas prone to flooding. Short term and disconnected decisions are being made in response to the many competing demands for land use. Government policy is clear on this but must be adequately enforced to avoid inappropriate development in flood risk areas and especially on the active flood plain.
28. There has been considerable media coverage of new development still being delivered in areas of significant flood risk. Factors at play have been cited as limited capacity within planning authorities to properly scrutinise applications, alongside a lack of capacity in building control to enforce planning conditions or refusals of permission by LPAs being overturned by the planning inspectorate or Secretary of State at appeal. This is evidence of a systemic failure to deliver resilient housing and whilst there is an undoubtedly urgent need to build more housing stock, resilience to flood cannot be compromised and flood resilient design must become an intrinsic part of building regulations. Local authority powers and capacity to enforce those regulations must be increased.
29. The draft FCERM strategy set out the concept of moving from protection to resilience, in relation to growth and infrastructure, to communities, and to individuals. It emphasises the need to reflect resilience need in the context of different places, recognising that different places will require different combinations of approaches.
30. We need to improve the definition of what resilience means and looks like in practice. Most importantly we need to recognise that this means very different things to different people and must be communicated in a way that is appropriate to the audience. Moreover, it is essential that all stakeholders are properly listened to and heard. Local communities are often the eyes and ears of local flood risk, must be regarded and listened to as such.

31. The announcement of £5.2 bn of capital funding for flood defences over the next five years is welcome and we look forward to the subsequent announcements for how this will translate into funding for the devolved administrations. £5.2bn represents a considerable increase on previous levels of funding, in line with recommendations made by the National Infrastructure Commission and Environment Agency in its Long-term Investment Scenarios.
32. We welcome the Government's recognition that the rules and guidelines that currently exist to determine whether or not FCERM schemes may progress, and if they do what proportion of flood defence grant-in-aid (FDGiA) they are eligible for, should be reviewed. The range of outcome measures required to be delivered, and the proportion of partnership funding which must be secured for many schemes can prove prohibitive for them to progress.
33. As we stated to the Committee in our evidence to its inquiry on coastal flooding, much of the low hanging fruit – as far as partnership funding is concerned – has already been had, and this was often other sources of public money. When approving schemes, there should be a re-evaluation of the benefit cost criteria to overcome the problem that other forms of infrastructure, such as highways, seem to be able to avoid and proceed on much lower benefit cost ratios than FCERM schemes. It should also be noted that the benefit cost ratios assigned to FCERM schemes are an underestimation of the true benefit to the UK economy, human wellbeing and the protection of nature.
34. The welcome investment commitment for new capital schemes needs also to be accompanied by a sustained increase in revenue funding for the ongoing maintenance of these and existing flood defences and staff capacity to deliver wider services including forecasting and warning. The sums have been announced to fund more than 2000 new flood defence schemes (better protecting 336,000 properties in England). Politically speaking this is a common occurrence – new defences land well with at-risk electorate but misses the importance of ongoing, and potentially increasing maintenance need for existing defences.
35. FCERM capital and revenue investment needs to be mirrored by improved investment elsewhere; particularly in local authorities to increase capacity in local planning services and Lead Local Flood Authorities. These have been severely impacted by cuts to local authority budgets and ring-fencing of funding for FCERM within local authorities has been removed such that it commonly gets diverted to more immediately pressing areas of need.
36. At present there is no requirement on Local Authorities to deliver schemes that improve the risk from surface water flooding. The understanding of the current level of risk is also very patchy across the country and in some places has not moved forward much since the Flood and Water Management Act 2010. Some funding was made available recently to model risk, but this was based on improving national mapping with set thresholds, rather than understanding how catchments behave and identifying the level of local risk which is what local authorities need to implement solutions and elicit funding support.

37. In order to set out a programme of improving resilience it would seem sensible to first identify the current level of resilience. In many areas it is well known that surface water flood risk maps are inaccurate. This prevents a proactive approach to reducing risk and responses and seeking investment. This is incompatible with any central policy approach to build resilience at both the national and local level.
38. When considering solutions along the coast, investment in defences must consider a wider range of benefits rather than the tradition of comparing costs and damages. The relocation of communities, infrastructure and loss of housing stock or valuable land is not properly accounted for. The importance of the coastal zone to the national economy and infrastructure is undervalued due to the geographical boundaries placed upon strategic assessment and business cases. Our ability to account for the benefits of our coastline to the rest of the nation are hampered by concerns of 'double counting' and a lack of sophistication in appraisal methods.
39. Climate change places extreme pressures on our coastline due to the in-combination and escalating feedback loop of increased storminess and coastal recession, lowering of the foreshore and coastal squeeze. Whilst investment in coastal defences has provided significant reductions in risk there have been a number of 'close calls' where the coincidence of tides, atmospheric conditions and waves could have led to more severe conditions and failure of defence systems. Coastal change and its impact on communities must also be a significant area for attention by government in coming years.

How can communities most effectively be involved, and supported, in the policies and decisions that affect them?

40. Communities can be repeatedly affected by flooding and coastal erosion and this has an irreversible impact upon them, therefore they must be at the heart of decision making. The UK's approaches to engaging communities in managing flood risk and coastal erosion must be informed by the challenges we will face in the future rather than how we responded to events in the past. This focus must ensure that the needs of the disadvantaged and vulnerable, and of mental and physical health impacts are properly considered. Local knowledge and skills should be engaged in all levels of planning for resilience, supported by fairness, transparency and accountability by those in positions of responsibility.
41. There needs to be a step change in the depth of communities' understanding of what resilience to flooding means for them, in that not all flooding can be prevented and rapid, effective recovery after an event is necessary. Similarly, there should be clear, deliverable pathways to adaptation, including relocation, for those communities at risk of coastal erosion. Governments and the insurance industry must ensure that affordable and accessible insurance is available for all homeowners and businesses and that all flooded properties are consistently repaired in a flood resilient, high quality manner, 'building back better' so assist recovery from any future flooding.

42. The new National FCERM Strategy for England establishes principles that require engagement with communities and the benefits of empowering those communities to own and manage flood risk.
43. The following basic principles must be followed:
- Engage with communities before deciding;
 - be transparent about the rules for engagement and the limits on the possibilities;
 - if active involvement in asset management by communities is desired, work out with those communities the assets they are best able to manage, and
 - don't divorce the discussion with communities from that with landowners.
44. For some, the message that not all properties and communities can be protected is a very stark one that will create a great deal of anxiety and uncertainty. Resources, funding and time for community engagement has tended to focus on places where a project or scheme is proposed and less so on communities where a policy of no intervention is proposed. This has led to 'forgotten' communities for whom some of the messages in the new strategy will offer no comfort. The involvement and support of such communities will require skills and an approach which is quite different from 'scheme-based' engagement.
45. Engagement is financially costly and can be complicated; it's about a long-term journey from policy (e.g. SMP) and strategy to outcome. If people aren't engaged in that entire journey, and funding isn't made available for all potential outcomes, attempts at community buy-in will inevitably fail. If the case is to be made that it is not possible to protect everywhere and that people need to adapt, we must be able to offer a road map and funding on how to do so.
46. Policy and funding mechanisms are not sufficient to enable communities to take action and make themselves more resilient. This point is consistently and constantly made at CIWEM's events and by our membership and requires concerted effort by government when undertaking spending reviews and in modifying methods for appraising and allocating funding. Without this financial support from the outset there is a danger that some of the key principles of the strategy (e.g. A nation ready to respond and adapt to flooding and coastal change) will be undermined and difficult to progress.
47. Examples of local groups can be seen in high risk areas and residents can register as Flood Wardens with the EA or as Local Emergency volunteers with the Red Cross. There will be a refresh of the Local Flood Risk Management Strategies in 2020 which communities can get involved in. However, it is currently unclear who can provide them with the support necessary to sustain local groups over time. The skills and staff time to do that is not consistently available in local authorities and the EA are stretched in this area already.

With increasing focus on natural flood management measures, how should future agricultural and environmental policies be focussed and integrated with the Government's wider approach to flood risk?

48. The developing detail of the Environmental Land Management (ELM) scheme for agriculture, as part of Defra's 25-year Environment Plan, has the potential to deliver the landscape changes required to contribute meaningfully to mitigating environmental hazards (floods, drought, fire) or delivering clean and plentiful water. At the same time, and vitally, they also have the potential to deliver nature recovery alongside these benefits. We therefore fully support the direction of policy development and the concept of delivering public goods with public money and using nature-based solutions widely.
49. There is potential to deliver water resources benefits alongside flood risk management benefits and vice-versa, and this understanding is reflected in the government's FCERM policy statement and proposals for a number of schemes.
50. Ongoing UKRI-NERC research is showing that effective delivery of water resource-related benefits is only achieved where the interventions are targeted and then deployed intensively (scale is critical). The most cost-effective ELM scheme (i.e. resources used for interventions that actually work) is ELM Tier 3 incorporating only interventions ('ELM Actions') proven to be environmentally effective at landscape scales. Piecemeal deployment is environmentally less effective and risks diverting essential resources from more effective schemes.
51. This means that approaches must vary depending on the priority outcome to be achieved in any given geographical area. Agricultural and environmental policies will need to reflect this, and effective and accessible advice, on a site-by site basis, along with an effective framework for land managers to collaborate and work effectively together to deliver outcomes will be essential.
52. We would emphasise that:
 - Farmers have a clear role to play in flood risk management, but this requires proper planning across the catchment as opposed to a piecemeal approach;
 - there is a need to properly incentivise farmers and landowners beyond the simple calculation of income forgone, given the public goods that will be delivered;
 - NFM is a long-term undertaking so both ongoing maintenance and liability need to be factored into any ELMs scheme design, and
 - Flood storage and ongoing maintenance may go well beyond the typical length of an agreement between the landowner and the EA. This must be factored in; long-term measures should be funded from the FCERM budget to ensure their long-term viability.
53. Catchment partnerships, established under the Catchment Based Approach, are an effective way to ensure a joined-up view of water and land use with water catchments

as they involve land managers such as farmers, risk management authorities, conservation NGOs, businesses and a range of other partners. The Environment Agency also has an important role to play in facilitating integrated approaches and multiple benefit outcomes in view of their existing roles, both in relation to modelling and managing flooding as well as regulating abstraction and water resources management.

54. The challenge of finding joint solutions for flooding and water resources is that the events of each happen at fundamentally different periods of time and the solutions serve different purposes and can conflict i.e. a reservoir for water resource needs to be kept full, but for flood risk management needs to be kept empty. This is a challenge that will require innovation to balance, but it offers potential.
55. NFM has a key role to play in managing lower intensity and higher frequency flooding but it will not on its own be effective against the scale of extreme floods, particularly when ground is already saturated. Future policy and promotion of solutions needs to prevent NFM as being regarded as a panacea. Instead, it should be considered as a vital, multi-beneficial part of the FCERM intervention portfolio, which is particularly well-placed to deliver wider benefits.

How can housing and other development be made more resilient to flooding, and what role can be played by measures such as insurance, sustainable drainage and planning policy?

56. During the floods of last winter, issues relating to construction of new build property in the floodplain, the accessibility of affordable insurance, the ability of property flood resilience measures to enable quicker recovery post-flood, and the impact of upstream land use change on downstream communities all received attention. The additional key factor was how an increasing frequency of extreme or prolonged rainfall events is contributing to widespread very high river flows.
57. Collectively these characterise some of the major contemporary FCERM challenges. Action is required on all of these fronts to increase flood resilience. Individually none offer a solution; collectively and judiciously deployed they can and will improve the picture. But this requires policy ambition and clarity, and appropriate investment.
58. Housing can be made more resilient to flooding by ensuring that:
 - Land use upstream of at-risk communities acts to absorb, store, and slow down the flow of water as much as possible. This requires ambitious new policy through ELMS and, fundamentally, sufficient public investment in advice and income to land managers providing this service.
 - Nature-based solutions which effectively infiltrate and store water (sustainable drainage system or SuDS) should similarly be embedded into new developments as a matter of course and retrofitted into existing urban areas to improve water storage and reduce the burden on existing drainage networks which are near or at capacity. Awareness of SuDS is growing amongst developer and planner

communities, but delivery is still far from what it should be in terms of extent and scheme quality. Planning regulations, technical standards and development control capacity must all be strengthened to ensure that the foot-dragging and intransigence around SuDS delivery seen since 2014 comes to an end.

Commencing schedule 3 of the Floods and Water Management Act 2010 would be a means to drive this forward ambitiously and experience from Wales would be valuable in learning lessons and providing an evidence-base.

- Extensive uptake of well-implemented and appropriate property flood resilience (PFR) measures. We welcome the launch of the Property Flood Resilience Code of Practice (CoP). This will provide the standards against which quality may be assured in relation to PFR delivery. The CoP now requires promotion with property owners, installers, developers and insurers to encourage adoption in retrofitting to existing properties and inclusion in new build. The availability of training for each group needs to grow and this should be accredited to ensure high standards are maintained. A register of qualified professionals should be maintained and a means of 'scoring' of property resilience established that has industry recognition and is a reliable guide to insurers of where PFR installation may be able to reduce premiums. We welcome recent announcements by FloodRe for 'build back better' to enable resilience measures to be installed in properties undergoing repairs from flooding.
59. Given the increasing climate projections there is a risk that the current standards set by the requirements of the exception test and climate change allowances will not be sufficient to ensure safety and resilience across a development's lifetime, typically 100 years. We note that the climate change allowances for rainfall and peak river flows are scheduled to be updated this year and advise that a precautionary approach is taken to setting the new allowances. Otherwise there is a danger that tens of thousands of residential and commercial properties and infrastructure will not be properly assessed for flood risk.
60. Strategic Flood Risk Assessments (SFRAs) are key tool to informing local plans and major growth proposals on avoiding and mitigating flood risk. However, the FCERM skills and capacity of local planning authorities, who lead SFRA production and implementation, is very constrained. We understand the EA has recently undertaken research on this topic and suggest further information is sought on its findings. Capacity within local authorities around planning and enforcement was recently flagged within the planning white paper as a possible area for government attention. We welcome this and urge that years of erosion of this capacity should be reversed as part of putting in place the necessary means to improve the flood resilience of places.
61. If there is a direction of travel towards the primacy of local plans within land use planning, as set out in the white paper, feeding in the right information on flood risk and land use at the local plan stage will be even more critical than presently.
62. Since the private sewer transfer under section 42 of the Flood and Water Management Act, private sewers have continued to be built but they are not always being checked or adopted by RMAs. The issues from this are yet to start playing out but could prove

very problematic for residents in future if neighbours are not maintaining their assets and become a future liability for RMA's who will be expected to deal with the implications.

63. CIWEM strongly supports the removal of the automatic right to connect to the sewer or, at the very least, that connection to public sewers is conditional upon meeting Design and Construction Guidance of the Codes for Adoption of sewers, and any updated version of the Non-Statutory Technical Standards for SuDS.