

Introduction

1. The NFU represents 55,000 members across England and Wales. In addition, we have 20,000 NFU Countryside members with an interest in farming and rural life. We welcome the opportunity to respond to the EFRA Committee inquiry on Flooding. Given our members interests, we have chosen to respond to the Committee's questions from an agricultural perspective.

Executive Summary

2. In brief, the NFU's response outlines the main impacts flooding has on agriculture and sets out how successful future adaptation to the increased risks from climate change is needed to increase the resilience of the agriculture sector.

Withdrawal of Maintenance

3. The Environment Agency (EA) has a published protocol ('Protocol for the maintenance of flood and coastal risk management assets¹') for withdrawal of maintenance which the NFU believes should deliver a minimum standard of consultation with affected parties. However our experience is that even this minimum standard is not always adhered to. It is essential that early (average notice is 6-months²) and open discussions are held with those that may be affected and that the EA is clear from the outset of its intentions and clear and consistent terminology is used.

Natural Flood Management (NFM)

4. Farming, as the principal land use in most catchments, has an important but underused role in NFM. Given the contribution such actions would make to flood management – often these actions are long term or permanent service provisions – they should be rewarded on a similar basis. However, there remains a lack of clarity around responsibility or liability and sustained support to landowners and farmers who agree to the implementation of NFM features/schemes after either the short-term funding for the scheme ends or interest fades.
5. The NFU recognises that there are benefits to NFM, but it must also be recognised that it cannot be considered as the only solution to flood risk reduction or flood storage within a catchment. Often a combination of both hard defences and nature-based solutions are required. In addition, whilst NFM has its place in reducing the risk of flooding, it is critical that communities understand its limited function during extreme weather events, something we are experiencing more often.
6. Ultimately, **NFM must sit within a robustly evidenced catchment-wide flood mitigation plan** that accounts for the physical, land management, economic and environmental features and assets of the catchment. This must remain at the forefront of the EA's mind when considering potential flood management options. Furthermore, the EA must engage at the earliest opportunity, and fully, with rural communities and farmers in helping to identify the best solutions to address flood management.

Future Environmental Land Management Schemes (ELMs)

7. The funding for the new Environmental Land Management scheme (ELMs) will be limited, given the many demands. NFM measures must also be contrite to other environmental outcomes, NFM as the sole outcome should continue to be funded through EA FCERM budgets. There is great

¹ <http://eastdonylandpc.co.uk/wp-content/uploads/2016/07/EA-Maintenance-protocol.pdf>

² <https://www.gov.uk/guidance/flood-and-sea-defences-when-maintenance-stops>

potential for a scheme that ‘stacks’ environmental service provision for a number of complementary outputs, if the scheme and reward structure is designed to permit such an outcome. However, as ELMs is still being planned and assessed there needs to be complete engagement with the agricultural sector to ensure that the options available are the right ones and must also work with businesses which have different lengths of land tenure.

8. The NFU believes that further evidence and guidance is required as to how a new ELM scheme will contribute to farmers and landowners who are at risk from flooding and coastal erosion.

Sustainable Drainage Systems (SuDS)

9. The NFU understands the need to manage flood events and that Sustainable Drainage Systems (SuDS) can help to manage surface water flooding. However, adequate funding and clear guidance associated with the maintenance and liability of a SuDS scheme are required. This should be funded through development charges as part of planning gain. A strong argument for all major developments in a catchment being ‘zero’ runoff. Transparent discussions with farmers and landowners who will be impacted are essential prior to a decision being made.

NFU Response

Q1. How effectively do the new Government policy statement and Environment Agency strategy meet the challenge posed by a changing climate?

10. The Government’s plan hopes to see the delivery of flood and coastal defences to prevent £32 billion in economic damage. The EA’s Strategy looks to meet the challenges posed by climate change using a suite of ‘tools’. One of these tools of most concern to the NFU is the overall change in flood risk management strategy from a ‘protect’ to ‘recover’ approach. This could lead to tens of thousands of acres of agricultural land, rural communities, critical infrastructure and livelihoods being exposed to the risk of coastal and fluvial flooding. This has been encroaching upon rural communities for decades as the EA has not continued to maintain FCERM assets. The EA are now actively decommissioning or transferring these assets to landowners or other Risk Management Authorities (RMAs) e.g. Internal Drainage Boards (IDBs). These assets are termed ‘non-economically viable’ by the EA therefore it’s difficult for another RMA to adopt the asset or for a landowner to thereafter be deemed responsible for it. With regards to climate change this could leave vast areas unprotected from sea level rise. Coastal flooding is arguably the most destructive to the agricultural sector as saline intrusion can lead to an area of agricultural land being out of productivity for more than 9 years³. The Climate Change Committee report predicts increased sea level rise which could lead to an increase of 70cm in an extreme scenario. This further reiterates the need for adequate coastal defences⁴.
11. The NFU is encouraged to read that the Government’s plan represents a comprehensive, cross-government commitment to increase our national resilience to flooding and coastal erosion, including proposals to change regulations and unlock more investment from government and others.
12. Adaptation and resilience is a COP26 presidency priority, so the NFU, the nation, and the international community are looking to the UK Government to show leadership on this. The NFU has already challenged the Government’s decision to exclude washlands in the third round of the Farming Recovery Fund due to there being no agreements in place for the washlands that were affected in Yorkshire. As of the end of July 2020, we were informed of only 16 successful

³ http://file.scirp.org/pdf/JWARP20120500007_13286140.pdf

³ https://cpo.noaa.gov/sites/cpo/Projects/RISA/2013/reports/2012_CISAandSCSeaGrant_SalinitySARPreport.pdf

⁴ <https://www.gov.uk/government/publications/flood-and-coastal-risk-management-in-england-long-term-investment/long-term-investment-scenarios-ltis-2019#main-findings>

applications: this is extremely disappointing as we believe this is due to the stringent eligibility criteria which does not reflect the farm businesses severely affected from the 78,000 hectares of agricultural land that was inundated for several weeks..

13. In its 2020 progress report, the Committee on Climate Change called for a strong and effective government response to address the fact that “there has been no coherent policy to improve the resilience of the agriculture sector”⁵. We are looking for a future policy to deliver the Farming Recovery Fund that will provide a level of consistency in treatment and eligibility and therefore reassurance to farmers for this crucial fund. We would also like to see it broaden its offer to cover the potential for adaptation or resilience against future flooding, instead of like-for-like replacements.
14. In the Government’s plan, one point of particular interest to the NFU is the inclusion of the statement ‘ensuring that our existing flood defences are well-maintained and climate resilient’. Maintenance of our existing hydrological and flood risk infrastructure, whether natural or manmade, is hugely important as the entire catchment needs to be fully functional in order to manage our flood risk, now and in the future.
15. It is interesting that the Government has joined-up its flooding policy with other environmental policies including the Tree Strategy, Peatland Strategy and the new ELMs. Whilst we recognise the proposed measures linked with these policies may have a part to play in reducing the flood risk and enhancing wildlife, we need to carefully consider the bigger picture and have a coherent strategy for our nation’s food security and safeguarding of agricultural land. In this respect, we have an interest in the continued development of the National Food Strategy, led by Henry Dimbleby.
16. The NFU would like to emphasise the international dimension and the global nature of climate change. The UK cannot continue to rely on other parts of the world to solve a national problem and feed the UK population when every part of the world will also be affected by a changing climate. The IPCC⁶ has highlighted that climate change is already affecting all four pillars of food security and that the stability of food supply is projected to decrease as more extreme weather leads to greater disruption of food supply chains. As harvest 2020 is underway we are now starting to see the true impacts of this with reports suggesting this may be the worst harvest on record

Integrated Water Management

17. The NFU is leading the way for the agricultural and horticultural sector in developing an integrated water management will help to mitigate water related risks (floods and droughts) as well as ensure farm business productivity by increasing on-farm resilience to future risks. We are therefore pleased to see that the Government’s policy statement includes reference to such an integrated approach as this may potentially help meet the challenges posed by the changing climate.

Flooding & Coastal Erosion Risk Management Strategy

18. The EA’s Strategy states that it will not be effectively delivered by RMAs alone and that everyone needs to take action now to help tackle climate change and future flood risk. Farmers and land managers are stated as being key contributors to planning and adapting to future flooding and coastal change. The NFU is glad to see the role of farmers and land managers recognised as farmers and growers across the country are willing to play their part to help reduce flood risk.

⁵ <https://www.theccc.org.uk/wp-content/uploads/2020/06/Reducing-UK-emissions-Progress-Report-to-Parliament-Committee-on-Cli...-002-1.pdf>

⁶ <https://www.ipcc.ch/report/srccl/>

However, provisions must be in place that will plan, protect and pay for the public good that may be provided by protecting people and property from flooding, especially if it's to the detriment of the farm business/productivity.

19. Nature-based solutions are referred to heavily within the Strategy. The Government's Agriculture Bill provides the framework for a new ELMs, which may include the management of land or water to protect from environmental hazards. The NFU recognises that many organisations, including the EA, are looking to ELMs to support farmers who help reduce flood risk. However, we believe that the FCERM budget should also provide support. Provisions need to be in place that adequately consider the maintenance and liability of such schemes to ensure the onus does not fall on the landowner. The NFU believes this will be imperative to future NFM schemes.
20. The NFU is pleased that the Strategy states that RMAs will work with partners to deliver practical and innovative actions that help to bolster resilience to flood and coastal change in local places. A catchment led approach to managing the flow of water to improve resilience to both floods and droughts, and maximise opportunities to work with farmers and land managers to help them adapt their businesses and practices to be resilient to flooding and coastal change. In order to do this successfully we ask that the EA refer to our asks in the NFU's 2017 Flooding Manifesto⁷, which they supported, which sets out how RMAs can work with farmers and land owners to alleviate flood risk, .This would include early engagement, safeguarding productive farmland, reasonable annualised or event-based payments, and long-term strategic planning.
21. The NFU is concerned over the Strategy's view of the historic perspective of "resilience by investing in flood defences to protect farmland" which are now "deteriorating". The Strategy states that these defences may no longer be sustainable and the EA states that it is seeing other countries promote the use of nature-based solutions to manage flood risk. The example given by the EA is the US Army Corps of Engineers promoted community resilience following Hurricane Sandy in 2013 by "engineering with nature", recognising the lower cost and more resilient solutions that working with natural processes could deliver. The NFU believes that the cost of maintaining these defences which are crucial in protecting farmland would not be more than new solutions if they were not left to deteriorate in the first place. The comparison of a US catchment to that of an English one is unhelpful as scale, land use and engineered aspects are wholly incomparable.
22. The Strategy puts forward a toolbox of resilience that includes recovery and specifically mentions 'draining floodwaters from farmland'. The NFU is pleased that the EA has recognised the importance of draining farmland after an event; as the time needed for the land to recover depends greatly on the duration that the farmland has been inundated with floodwater.
23. The Strategy includes an agriculture chapter which the NFU is particularly pleased to read as it is something we have specifically wanted to see included. The case study examples included therein clearly demonstrate that farmer and landowner agreement is crucial to any NFM or 'slow-the-flow' projects. We strongly believe that liability for and maintenance of any nature-based flood defence needs to be made clear to the riparian owner and provisions made so that there is funding, resources and legislation in place to safeguard the landowner, without whom the project would not be possible.
24. Interestingly, the EA refers to the creation of new areas where water can be stored such as the Lincoln washlands and Louth and Horncastle flood storage reservoirs. It is important to note that agreements are in place for this provision. These agreements are crucial to the success of any flood storage area and should be reviewed regularly as the frequency and magnitude of flood events have been increasing, so too have the financial losses farmers and landowners face when

⁷ <https://www.nfuonline.com/flooding-manifesto-jan-17-final-online/>

providing these flood alleviation measures. Furthermore, the recent policy decision by Defra to exclude washlands from eligibility to access funding from the Farming Recovery Fund will undoubtedly impede a farmer's business choice to enter into ELM due to the lack of support from the Government from this policy decision. It is our understanding that the EA has designated flood storage areas or washlands across the country without informing the landowner or farmer. The NFU calls for transparency, flexible and future proof agreements, and fair payments for the provision of flood storage areas.

25. The Strategy refers to SuDS to help reduce surface water flooding. SuDS, and other nature-based solutions to flood risk management, are being increasingly favoured due to their low-cost implementation and the lack of achievable flood defence funding from central government due to the stringent and often unrealistic cost-benefit criteria. However, the largescale uptake of SuDS would not be possible without the enactment of Schedule 3 of the Flood and Water Management Act 2010. This would allow for local authorities or water companies to adopt and maintain systems, rather than the onus falling onto the landowner. The NFU would stress how important it is for compliance with the Act to be foremost and with any additional potential benefits from nature-based solutions to be then added. Without this, the future of SuDS will be extremely limited.
26. The NFU is pleased that the Strategy recognises the need for a 'catchment-based approach' to manage the flow of water from the source of our rivers to the sea, this includes conveyance throughout the catchment.
27. Farmers across the country are ready and willing to help alleviate the flood risk to communities but we would reiterate that this should be in line with our asks in the NFU's Flooding Manifesto⁸ – plan, protect and pay. No longer should farmland be considered sacrificial especially as British agriculture has played a vital role during the Covid-19 global pandemic. Flooding should be by mutually agreed design and not an assumed default.

Q2. Are the current national and local governance and co-ordination arrangements for flood and coastal risk management in England effective?

28. During a flood event in a predominantly agricultural area, we believe that it would be extremely useful if organisations, like the NFU, were included in the Local Resilience Forum (LRF) discussions as we have the communication platform and networks to provide support which would be beneficial both to our members and the LRF. Our members can also relay essential local knowledge and provide, if required, additional resource. By way of an example; after the NFU's work to help North Yorkshire County Council during the Summer 2019 floods, members of staff from the NFU's North East Team were invited to join the North Yorkshire LRF during the Lower Aire (East Cowick and Snaith) floods this spring.
29. Co-ordination of the risk management is largely effective, but in some cases, we have examples where there seems to be a distinct disconnect between some Lead Local Flood Authorities (LLFAs), the EA and other RMAs during an incident. Often miscommunications can lead to pumps being withdrawn from use, when they could be utilised elsewhere.
30. Within the EA, there has been inconsistency in the interpretation of guidance/regulations from local to regional and even national level. Albeit not widespread, this can be hugely unhelpful and confusing for our farming members.
31. Effective co-ordination is key when managing the response to a flood event and can achieve much better results. Coordination between LLFAs is critical when events cross numerous boundaries and can be challenging. Coordination between all LRFs is also critical, both during the incident, recovery

⁸ <https://www.nfuonline.com/flooding-manifesto-jan-17-final-online/>

and review. There is a potential argument here for a single regional resilience body that includes flooding in its remit.

32. The sharing of data (e.g. satellite imagery, potential flood impact areas etc.) between all actors could be improved to ensure all RMAs and partners understand how flood assets operate and where water may be diverted to should a decision be made. This will also help RMAs plan for dealing with an event.

Q3. What level of investment will be required in future in order to effectively manage flood risk in England, and how can this best be targeted?

33. The EA's Long-Term Investment Scenarios (LTIS) 2019⁹ states that £1.1 billion of annual investment is required to provide protection and resilience from flooding in England. The Government proposes to spend £5.2 billion on capital projects over six years between 2021 and 2027 to reduce the risk of flooding to 336,000 homes and non-residential properties. According to EA modelling, this is projected to reduce national flood risk by up to 11% by 2027. During the previous six-year period up to 2021 the Government has invested £2.6 billion in capital projects to reduce the risk of flooding to 300,000 homes across England. The weighting of the awarding of the funding is heavily granted towards protecting people and property and disregards high-value agricultural land. Therefore, using the Government's own data there is not adequate funding available to counter the impacts of future flooding on agricultural land.
34. Agriculture is often at the mercy of extreme and changeable weather, whilst at the same time, it is viewed by some as the solution to many flooding problems. Whilst current funding prioritises concentrations of people and property, farmers experience a lack of maintenance of watercourses and coastal channels and reduced maintenance of banks and flood defence assets. The result is more frequent, more extensive and longer duration flooding events. Without insurance cover for their losses, farming businesses are being put under increased financial pressures after each flood event. At the same time, they are being asked to take more and more land out of production (with extremely limited reward, if any) to reduce flood risk elsewhere.
35. This is an unsustainable and inequitable outcome, which causes damage to farming businesses and rural communities. Furthermore, it is unreasonable that communities that are afforded little protection from flood funding are the same communities that are asked to implement measures and make significant change to benefit others. Therefore, we ask that the Government's approach to the allocation of flood risk management funding, should prioritise the nation's food security (and therefore agricultural land) alongside people and property.
36. Flooding and water management in river and coastal areas must be properly funded to protect urban and rural businesses, infrastructure and communities. Government spending must be transparent, and the artificial distinction between capital and maintenance expenditure removed. The NFU recognises that the total amount of funding available for flood risk management has increased, with budgets confirmed until 2021. Between 2016 and 2019 there was an increase of more than £100m in the annual funding available for the installation of new flood defences and the importance of maintaining existing defences must stay at the forefront of the Government's flood risk management strategy. However, very little of it went to protecting rural communities or agricultural businesses.
37. Currently, adequate funding is not available and we recognise that money from other sources (private or through levies) may be required. However, the Government will need to work with stakeholders to develop this potential flood defence funding plan.

⁹ <https://www.nfuonline.com/cross-sector/environment/water/flooding/ea-release-flooding-scenarios-report/>

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38. Careful consideration with planning and flood risk modelling would be required if there was a direction to encourage businesses to protect their own assets. This could result in unintended consequences and possible displacement of flood water. For example, businesses who have the capital to be able to afford to build their own flood defence protection, could then displace that flood water to either a completely different area or, more likely, onto agricultural land. The amount of flood defences that would be required in some areas would not be affordable to the majority of farmers and landowners. Therefore, we fear that adequate strategic planning would need to be in place to assess the potential flood risk exacerbation if increased large business (asset or property level) protection rises and a mechanism to compensate those impacted.
39. The Government's Policy Statement also includes £200m for 'innovative projects' which relies on the creation of areas to store water during flooding, SuDS and there is an emphasis on the use of nature-based solutions to reduce flood risk. This sounds encouraging but the NFU's main asks as outlined in our 2017 Flooding Manifesto¹⁰ remain; maintenance and liability of any nature-based solutions should not fall to the landowner; provisions need to be made to address this. With regards to SuDS, we would need to see the enactment of Schedule 3 of the Flood and Water Management Act 2010 in England before this measure is implemented.

Q4. How can communities most effectively be involved, and supported, in the policies and decisions that affect them?

40. The NFU should be invited to participate in the Local Resilience Forum, or at least should be invited to dial in during an incident. Farmers are often equipped and willing to assist. They are also knowledgeable about the local hydrological regimes and can provide essential information that may help reduce risks during an event. The NFU can also provide details of the potential number of impacted farming business and an idea of the types of vulnerable business (livestock) within an affected area.
41. Additionally, public confidence will be strengthened if the EA's withdrawal of maintenance procedure is adhered to in full and the reason for the withdrawal of maintenance is clearly conveyed. The protocol, which needs to be published on .GOV, will be successful if the EA informs and works with landowners/farmers from the outset. Consistent and open discussions about the potential withdrawal of maintenance will help to instil confidence in farmers, landowners and members of the public.
42. Flood risk management projects that will actively impact landowners, either with natural or traditional structures, must include active consultation and the input of their knowledge into modelling work. Schemes must also look at the full life costs of the project upon the whole farming business and payments made accordingly (a compulsory purchase order rather than just compensation must be offered).

Q5. 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?

43. The NFU recognises the increased focus on 'nature-based solutions', arguably since the EU's Sustainable Development Goals (SDGs) were published in 2015 which stated that natural solutions should be utilised to address flood risk problems. Natural Flood Management (NFM) is being increasingly implemented in catchments across the country because it is seen as a cheap solution compared with a hard-engineered or hybrid (i.e. a combination of natural and engineered solutions) projects. This is often due to the scheme not being able to achieve Flood Defence Grant in Aid (FDGiA) because of the stringent cost-benefit analysis which often leaves rural communities at risk. However, there remains a lack of clarity and support to landowners and farmers who agree to the

¹⁰ <https://www.nfuonline.com/flooding-manifesto-jan-17-final-online/>

implementation of NFM features/schemes after either the short-term funding for the scheme ends or local interest fades. In some cases, this leaves a single individual with the sole liability and responsibility of the feature/scheme which can lead to a plethora of issues to that individual, both financially and personally (for example stress/anxiety caused by potential feature failure).

44. NFM should be regarded as a public good; costs and risk should be shared by the beneficiaries/society on a full cost basis and not income foregone. Whilst the NFU recognises that there are benefits and that we are part of the solution and have a role to play when it comes to flood risk management, especially with regards to NFM, it must also be recognised that NFM cannot be considered alone, as the solution to flood risk. Catchment context must remain at the forefront of any decision making when considering potential flood management options.
 45. Farmers across the country already play an active role in reducing flood and coastal management. This is through the continued maintenance of thousands of kilometres of river network for conveyance and the environment, and where appropriate, proactive engagement in NFM schemes.
 46. The NFU recognises that NFM techniques, in the right location, can have a role, but they are not the universal panacea. Instead they should only be used as part of a cohesive and carefully planned package of measures across the catchment such as maintenance and de-silting, looking at upstream attenuation and downstream conveyance to address shorter- and longer-term flood risk.
 47. Special consideration needs to be given to the following:
 - The need to actively and fully consult, engage and seek agreement with land managers, especially farmers, to ensure schemes can work alongside other land uses, including agriculture and food production.
 - NFM measures bring their own suite of management and maintenance challenges that need to be addressed in any scheme's development and **long-term** flood risk management resource planning.
 - A clear functional remit for all NFM measures should be established, including any measures should the site attract species of designation. As such, an automatic assumption to duplicate the initial NFM measure cannot be guaranteed.
 - Where NFM techniques are implemented, suitable financial support and incentives should exist.
 - Agri-environment schemes (existing and future) are unlikely to be the best funding vehicle, particularly for bespoke, longer-term schemes or areas of lowland water storage; funding mechanisms need to truly value the flood mitigation services provided over decades rather than years.
 - NFM will come in a variety of forms, some may be compatible with food production (no till arable, cross slope buffer strips) but other approaches (washlands, woodland planting), longer-term NFM (10 years plus) need distinct funding through EA source, not Defra.
 - Any NFM measures must work for both the landowner and tenant(s).
 - NFM techniques could be implemented on farms and have a role in catchment wide flood risk reduction. But these measures must meet minimum defence resilience thresholds to provide the protection needed. Further research is needed to develop funding and implementation.
 48. As outlined within the NFU's Flooding Manifesto (2017)¹¹, where agricultural land is part of the solution to flooding as part of total catchment management, such as NFM or designated flood water storage areas, this must be planned, agreed and paid for in advance at commercial prices.
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49. Defra recently pledged £15m to help better understand NFM and its potential to alleviate flood risk management. However, it is important to consider that these projects were only awarded funding 2.5 years ago¹². Therefore, there will only be a very short period of monitoring to access the potential flood risk attenuation of these projects or any unintended consequences. Furthermore, catchment context is a hugely important consideration when it comes to NFM as what appeared to be successful in one catchment will not necessarily have the same effect elsewhere due to differing geology, land-use practices, soil type etc. The NFU would urge all involved parties (e.g. RMAs, Local Authorities, NGO's, community flood action groups etc.) to consider these aspects within their review of the Defra funded NFM projects.

Environmental Land Management schemes (ELMs)

50. NFM services offered by farm businesses would, in some cases, make a very considerable saving for the wider economy. However, before decisions are made on the sourcing of funding for NFM, it is necessary to clearly identify the range of techniques that could be provided. The NFU currently sits on the steering group for CIRIA's¹³ NFM project which has been commissioned by the EA. Unfortunately, financial constrictions may not allow the required suite of NFM tools to be covered by the project. ELMs is still being planned and assessed so there needs to be complete engagement with the agricultural sector to ensure that the range of options available will be the right ones. Countryside Stewardship (CS) schemes provide farmers and landowners with funding for some NFM options¹⁴. However, there has not been a great uptake in these due to the high levels of risk associated with taking part. The CS options are 5 or 10 years in length. The payments do not take into account what happens after this period e.g. replacing a dam or structure that will inevitably have a short life span due to the use of natural materials e.g. wood. There is also no cover or support when it comes to the liabilities associated with NFM structures or schemes – the liability falls to the landowner as the riparian owner. Therefore, if an NFM feature did fail, leading to increased flood risk downstream the liability is that of the landowner. The CS scheme also does not consider opportunity costs of creating a new habitat from which you cannot return to conventional farming. These are all lessons learned that the Government should carefully consider whilst developing the new ELMs.

51. NFM measures that see long-term diversions of land into non-food use (land use change) will need to sit in Tier 3 of ELMs, at least. Preferably, FCERM funding will be used to support this for the public good that is being provided and not fall solely on the ELMs budget. However, short-term more ephemeral measures like soil management (land management) would be suited to be funded as part of the proposed Tier 1 or 2.

52. NFM projects that have received funding from other sources e.g. a Rivers Trust usually have successful implementation but, interest of those initially involved usually dissipates once the scheme has been built (e.g. the Haltwhistle Burn project¹⁵). Often the funding is purely for the capital works and not for maintenance. We are at the point now where many NFM schemes have been in place for a few years and will need essential maintenance, without prior agreement the likelihood is that this essential and ongoing maintenance will have to be carried out by the landowner, who is continuing to provide a public good for the community.

53. In brief the NFU would like to highlight these main points:

¹¹ <https://www.nfuonline.com/flooding-manifesto-jan-17-final-online/>

¹² <https://www.gov.uk/government/news/schemes-across-the-country-to-receive-15-million-of-natural-flood-management-funding>

¹³ <https://www.ciria.org/>

¹⁴ https://www.gov.uk/countryside-stewardship-grants?land_use%5B%5D=flood-risk

¹⁵ <http://research.ncl.ac.uk/haltwhistleburn/>

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- 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.
 - The fact NFM is a long-term undertaking so both ongoing maintenance and liability need to be factored into any ELMs scheme design.
 - 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 and distinguished between; long-term measures should be funded from the FCERM budget.

Beavers & Flood Risk Management

54. Recent calls for the release of beavers within catchments in England are often associated with their alleged flood reduction benefits. However, the quantifiable evidence into the flood mitigation generated from beaver habitats in England and Wales is extremely limited, with recent studies not considering basic hydrological routing effects when considering the flood peak reduction in a reach.
55. Beavers are herbivores and are best known for building dams in watercourses, creating large pond-like reservoirs. The mammals use woody material to construct their dams and are considered pioneers in dam engineering¹⁶. However, these dams can cause a plethora of flood risk hazards which means that location, especially catchment context, is an essential consideration when contemplating the release of beavers within an area.
56. The risks could also far outweigh the benefits as beavers are renowned for sporadically ‘breaking’ or destroying, their dams. If a dam break were to occur during a peak event the dam-construction material would end up being transported downstream and could lead to blockages within culverts and under bridges; further exacerbating the flood risk e.g. the Devon beaver trial¹⁷ where 55 dams were originally constructed. Of these, there are only 26 in place now.
57. The NFU has serious concerns about the impact of beavers on agricultural land. Beavers can block land drains leading to the wetting up of productive land leading to losses in productivity e.g. Tayside, Scotland. They can also impact on maintenance of riverbanks, increasing the flood risk.

Overall Impact of Flooding on Farming

58. Furthermore, the importance and contribution of our food and farming sectors to the economy must not be overlooked; some of our most productive and highest value agricultural land (60%) is in the floodplain or coastal regions that are vulnerable to flooding, and deserves to be protected.
59. In order to ensure that adequate flood risk management can be enacted and delivered, actions and measures to address flood risk must be properly funded and the allocation for any funding must be transparent.
60. The NFU would welcome the opportunity for RMAs to work with our farmer and grower members to help identify opportunities for utilising farming practices to manage flooding whilst ensuring farm-business profitability. The discussion will need to take place before a decision is made by any RMA, as this will not only allow farmers and growers to provide essential local information but it will also allow farmers to plan and adapt their farming business in advance so the impacts are minimal. Discussions with our members must be open and transparent for this measure to succeed. There is already a plethora of environmental and flood risk activities licences and permits that our farmer

¹⁶ <https://phys.org/news/2018-05-beavers-good-reveals.html>

¹⁷ <https://www.sciencedirect.com/science/article/pii/S0269749105000540>

and grower members have to consider, for the achievability of a scheme it is important to ensure that the impacts of these regulations to our members is as minimal as possible.

Case Study Example: Humber Estuary

61. One example of adaptation to future coastal flood risk is the Humber Tidal Flood Strategy. This Strategy was initially set out by the EA in 2008. However, a recent update highlights that the Humber Estuary makes a substantial contribution to the UK economy, with investment around the estuary supporting thousands of businesses and jobs. In addition, this Strategy has also recognised the natural floodplain (the Humber Head Levels) supports some of the most productive arable land and diverse natural environments in the country. Situated on low-lying land, tidal flood risk is a reality for people living on and around the Humber. There is around 230,000 homes and 50,000 businesses at flood risk but also 120,000 hectares of high-grade agricultural land at risk of tidal flooding during an extreme flood. The effects of flooding can be devastating and with sea levels rising and storms becoming more frequent due to climate change, the Humber is at an increased risk.

Q6. How can housing and other developments be made more resilient to flooding, and what role can be played by measures such as insurance, sustainable drainage and planning policy?

62. The NFU welcomed the fact that the Government committed to an infrastructure first approach to development in its Election Manifesto through the planning system. Recent events have proven the need to ensure that both urban and rural areas can accommodate robust and future proofed drainage solutions. This is clearly needed for water infrastructure and for new development to be carried out in line with Schedule 3 of the Flood and Water Management Act 2010. Especially the need for local authorities to adopt and maintain systems (see para 25). The NFU stresses how important it is for compliance with the Act to be the priority and for any additional potential benefits from nature-based solutions to then be added.

63. There needs to be an accelerated programme of water treatment works and urban area upgrades to systems, some of which were developed over a hundred years ago. All drainage and sewage systems need to accommodate new development and cope with existing development pressure inherited from where smaller housing developments, replacement business units and car parks have been approved with drainage direct to the system. We now are witnessing additional pressures being created by climate changes, such as more intense and frequent rainfall events and more frequent flooding of properties, businesses, and land with polluted water from drains as well as from rivers. This increases the potential for pollution from these properties as well as increasing their clean-up costs after flush events.

64. Flooding solutions are not restricted to upstream locations, urban solutions can be delivered through the planning system, in doing so will contribute to more resilient catchments. As well as building regulations and requirements that are designed to capture more water around retail and industrial buildings, simple measures such as grey water recycling and water butts can all help. Building regulations could also be upgraded to help achieve cleaner water targets and to reduce wastewater as well as energy efficiency. The planning system can only go so far, there also needs to be a catch-up and focus on retrofitting homes with water reduction and water quality management features.

65. Cumulative run-off pressures from planning development can also go under the radar. One clear example is that large areas of suburbia have often been hard surfaced, with runoff direct to the drain, as front gardens are replaced by car parking using permitted development rights¹⁸. In theory those permitted development rights require hardstanding over 5 meters to either be made of more

¹⁸ <http://www.legislation.gov.uk/ukxi/2015/596/schedule/2/part/1/crossheading/class-f-hard-surfaces-incident-to-the-enjoyment-of-a-dwellinghouse/made>

porous materials or provide direct run off to permeable or porous areas within the curtilage of the dwelling-house. In practice they are often not enforced.

Water Infrastructure

66. As aforementioned, the Government itself has identified the clear need for water infrastructure (designed to manage water risks and resource e.g. ambitious flood storage schemes, innovative water resource projects) that are fit for the future. Water infrastructure is desperately needed across the country that adequately considers the risks from water as a hazard and as a resource.

Sustainable Drainage Systems (SuDS)

67. The NFU would emphasise the need for green spaces, incorporating water pollution reduction methods to be developed as part of the planning approvals they support. Measures should be self-contained and demonstrate that they will not impact on farmland or field drains. This can be an issue in urban fringe area, including Green Belts, where farmland can already be affected by uncontrolled water pollution and flooding. Providing SuDs within safe open spaces and wildlife footpath corridors; and swales within car parks and adjacent to highway improvement junctions; helps ensure maintenance can be carried out promptly and additional costs are not passed onto the adjacent landowners.
68. SuDs, and other nature-based solutions to flood risk management, are being increasingly favoured due to their low-cost implementation and the lack of achievable flood defence funding from central government due to the stringent and unrealistic cost-benefit criteria. The potential reduction of surface water flooding and water pollution from urban areas and transport from SuDS has been proven in the UK¹⁹.
69. However, the large-scale uptake of SuDs remains a distant prospect pending commencement of Schedule 3 of the Flood and Water Management Act 2010²⁰ (provisions are commenced in Wales) as this would allow water companies and local authorities to take responsibility of the maintenance and liability of a scheme and not leave it to the landowner. Without this, the future of SuDS will be extremely limited. As the pressures from increased surface runoff, flooding and the associated pollution on local authorities and water companies increases, they are looking to SuDS as a cost-effective solution. But there is a price to pay, and without the implementation of Schedule 3 it will be the farmer or landowner. Farmers across the country are ready and willing to help alleviate the flood risk to communities but this should be in line with our asks in our Flooding Manifesto²¹ – plan, protect and pay. No longer should farmland be considered sacrificial especially as British Agriculture has more than proven its worth during the Covid-19 global pandemic.
70. Currently in Wales, the statutory requirement for SuDS and managing run-off from development is a requirement unjustly placed on farming. We place on record our continuing concerns about the direct implications and costs of SuDS proposals on our members who are constructing new buildings etc. Establishing the threshold for exemption at <100m squared is far too low and is insufficient for agricultural purposes. For example, a lot of slurry stores will be larger than 100m². As a result of introduction of SuDS at this threshold, farmers are faced with additional costs due to the pre-planning application fees, design, and delivery costs of drainage solutions. We note that the Welsh Government is expected to review the effectiveness of the SuDS legislation by 2021. The NFU believes this review is required more urgently because in the rural context SuDS are not

¹⁹https://www.researchgate.net/profile/Petra_Schneider/post/how_will_one_go_about_in_comparing_the_construction_cost_of_SuDS_to_conventional_drainage/attachment/59d6398a79197b8077996c2c/AS:402343179898880@1472937497168/download/The-SuDS-Manual-C697.pdf

²⁰ <http://www.legislation.gov.uk/ukpga/2010/29/schedule/3>

²¹ <https://www.nfuonline.com/flooding-manifesto-jan-17-final-online/>

operating effectively. The costs and impacts to farm businesses greatly outweigh any benefits to communities in the form of reduced risk of flooding.

Property Level Protection

71. Property level protection is being increasingly relied upon for flood risk management as it is low cost, most of which falls to the homeowner, unless a grant is obtained. However, cumulatively the costs can surmount that of a larger defence that could potentially not only protect homes, businesses and infrastructure but also agricultural land. One example of this could be the Wash Frontage in Eastern England²². If the existing coastal defence was brought up to the same standards as the recently improved Wrangle Sea Bank, in line with projected sea level rise, the potential flood protection would extend for tens of kilometres in-land and would also go towards protecting some of the best and most versatile agricultural land in England.

Q7. What lessons can be learned from the recent floods about the way Government and local authorities respond to flooding events?

72. The main problem that communities across the country face after a flood event is that they are often forgotten about by the public and the media before the floodwater has fully receded. Funding after an event is provided on an ad-hoc basis with no joined-up thinking or long-term maintenance plans in place. Most flood funding is on capital projects not maintenance. The lack of investment to maintain flood defence assets is coming to light as we are seeing numerous breaches of flood embankments. For example, in the last few months the Wainfleet Relief Channel on River Steeping (in June 2019), Dorrington Catchwater (First week of October 2019) and Barlings Eau, East of Lincoln (9 November 2019) all failed due to breaches which led to thousands of acres of agricultural land being flooded. Additionally, there are also countless other examples of overtopping as a result of a lack of main river maintenance; predominantly caused by in-channel silt, vegetation and trees restricting the conveyance resulting unprecedented levels and then overtopping.

73. Flooding is a hugely contentious, public-focused problem that we are experiencing more frequently. The Government must listen to local communities, farmers, and landowners from the outset on the nature of the flooding problem in order to find the most appropriate sustainable solutions for that locality. Local rural communities have much knowledge to contribute to help target investment in maintenance of flood risk assets and watercourses in anticipation of problems (and mindful that pressure on these assets will only increase with climate change).

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²²https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/340816/Final_Wash_East_consultation_document_final_180714.pdf
