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Findings from landowner workshops

Natural Flood Management Environmental Land
Management Test and Trial

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The Natural Flood Management Test and Trial is being carried out by the National Association for the Areas of Outstanding Natural Beauty on behalf of Defra. It is part of the development of the Environmental Land Management scheme.

SCAPE (Shaping Climate Change Adaptive PlacEs) is a project that brings together partners from the UK, Netherlands and Belgium. It aims to develop 'Landscape-Led Design' (LLD) solutions for water management that make coastal landscapes in the 2 Seas area better adapted and more resilient to climate change.

Triple C (Climate resilient Community-based Catchment planning and management) is funded by the European Regional Development Fund and is a trans-national project looking to implement a set of cost-effective actions to reduce flooding and erosion. The project partners are based in Belgium, the Netherlands and the UK



1 Introduction

The Kent Downs AONB Unit has been commissioned by Defra to carry out a Test and Trial in Natural Flood Management (NFM) as part of a suite of Tests and Trials delivered by the National Association of Areas of Outstanding Natural Beauty. Six workshops were held between September and December 2020 to discuss the potential for the E.L.M. scheme to deliver NFM measures. These workshops were attended by both farmers and practitioners. The farmers were either from the Darent and Stour catchments in Kent where the Test and Trial has been conducted or were participants in some of the NFM trials that have taken place around England. The practitioners included staff from organisations that have been delivering NFM trials as well as staff from statutory organisations including the Environment Agency, internal drainage boards and local authorities.

The purpose of the workshops was to get feedback from farmers and experts about how NFM could best be delivered within E.L.M. and what support, guidance and incentives would need to be put in place to encourage farmers and other landowners and managers to participate. The feedback from farmers and practitioners both at these workshops and in other communication (interviews, personal communications etc.) have been combined to create this document. The document will present the main findings of our consultations for each of the six themes of the tests and trials. However, as a significant amount of time was spent discussing the barriers to participation, it was felt that this issue warranted a section of its own.

Abbreviations used in this document

AONB = Area of Outstanding Natural Beauty

BPS = Basic Payment Scheme

CS = Countryside Stewardship

DEFRA = Department for Environment Food and Rural Affairs

E.L.M. = Environmental Land Management scheme

IDB = Internal Drainage Board

NFM = Natural Flood Management

RPA = Rural Payments Agency

Where farmer is used in this document it should be noted that this refers to not only farmers but landowners and land managers as well.

Approach to recording conversations and presenting in this document

Minutes for each of the workshops were kept and circulated to participants to ensure that people's comments had not been misinterpreted.

In this document three approaches will be used:

1. Where individuals made comments that are noted in the text it will be made clear that a single person made the comment using text such as, "One participant noted that..."
2. Where a comment or similar comment has been made by multiple participants it will be introduced as such. For example, "many participants considered that..."
3. Conclusions drawn from these workshops will be kept to a minimum in this document but where they are made it will be clear that they are conclusions.

1.1 Key objectives of the workshops

The specific objectives of the consultations as identified by the project included attempting to identify:

1. the incentivisation required to enable collaboration across land holdings to implement integrated landscape scale measures.
2. the existing obstacles to participation in delivering climate resilient water management that require removal.
3. the information, knowledge and support required by landowners to be able to implement climate resilient water management measures through E.L.M.

As part of the workshops, participants were given a demonstration of the HydroloGIS modelling that has been carried out for the project by Angus Middleton of Viridian Logic. This tool identifies the areas that are most likely to be suitable for different NFM measures and the demonstration showed how the tool could be adapted to help landowners make decisions about which measures might be appropriate on their land as well as provide other useful information about construction methodology, payment rates, landscape character impact and whether permissions need to be granted. Feedback on tools of this type were also sought from participants.

1.2 Workshops September - December 2020

Six workshops were held between 15th September and 2nd December 2020. They were attended by 84 people. Three were held specifically for farmers, landowners, land managers, land agents and other interested parties in the farming sector. The other workshops were attended by practitioners of NFM. The main reason for separating the two groups was that we felt that some farmers and landowners might be able to be more open and honest about the kind of guidance and support required through E.L.M. if NFM professionals were not present. Equally, practitioners could be more open about the kind of support and guidance that they felt farmers would need.

1.3 Attendees

This section has been redacted in order to publish the document and maintain compliance with GDPR best practice guidance.

2 Barriers to participation

NFM measures are often new techniques to farmers and involve slowing the flow of water through the farm. This can be counter-intuitive for those that are more familiar with measures to alleviate flooding that aim to remove water from the landscape as quickly as possible. Consequently, there may be barriers to the uptake of NFM measures. Understanding these barriers is key to being able to design NFM into E.L.M. in a way that is attractive to landowners. The barriers will be discussed in this section with possible solutions identified in sections three to eight.

2.1 Reasons for not becoming involved in NFM projects

Participants in workshops cited a number of reasons for not getting involved in NFM projects. The most commonly encountered were:

There is no compensation for lost land

Multiple participants mentioned that one of the reasons that they did not participate, or would not participate, in NFM projects is that there is no compensation for land that is taken out of farming. NFM pilot projects often pay for the installation of features and can provide excellent advice and guidance. However, there is no mechanism for paying farmers for land that might flood and be taken out of production or that is fenced off from grazing animals. One participant mentioned that whilst he is keen to plant trees to reduce flooding, land will be lost that could have been used for grazing. This land will be lost for generations so he has to consider the impact of these decisions on younger members of the family. How long can he realistically be compensated for this loss of earning.

Presently, this is exacerbated by the fact that BPS payments may be lost if land is no longer able to be farmed. With the removal of BPS, this impact may be lessened.

Maintenance payments

Several participants mentioned that they were not paid to maintain NFM features if they were involved in E.L.M. pilot projects. Those organisations that co-ordinated the projects were not able to make payments to farmers.

Lack of familiarity with NFM

Both practitioners and farmers raised the point that NFM measures are not part of normal farming practices. Consequently, they may be some resistance to take up. Traditional measures to combat flooding often involve removing water from the land as quickly as possible so NFM may appear counter-intuitive to some. There is a need for advice to help improve uptake, which is explored in greater detail later in this document.

Upfront costs

For some of the larger projects, more than one participant mentioned the barrier that upfront costs cause. Having modelling work carried out, designing and getting features approved as well as the cost of installing a feature before being paid is a barrier to some. They simply do not have the cash flow to be able to pay this money upfront.

Payment rates

Several participants noted that simply covering the costs that a farmer incurs is unlikely to be enough of an incentive to make them carry out NFM work. They state that E.L.M. will need to provide an income (especially after the loss of BPS) to farmers and without it, uptake may be disappointing.

Compromising future payments

The future of payments to farmers for implementing NFM measures is unclear. Several practitioners mentioned that farmers they worked with would not take part in NFM projects as they were concerned that installing features now might compromise future payments. Although Defra has provided assurances that farmers will not be penalised for taking up CS options when E.L.M. is introduced there is a nervousness around this. This confusion is exacerbated by the promise of 'stacked payments' from other sources such as water companies, those looking to offset carbon emissions and achieve biodiversity net gain. There is little clarity about how any of the schemes might work.

Liability

Several participants raised concerns about the liability that might be incurred by landowners for having features on their land. The liabilities include the maintenance costs and who would take responsibility if a structure failed and caused flooding downstream. One participant also questioned whether they would be vulnerable to a legal challenge if they subsequently chose to remove a feature that had been providing flood protection to property downstream. Whilst this is a complex area, clarity over liability would help increase levels of uptake.

Bureaucracy

Four participants mentioned the difficulty that dealing with bureaucracy can cause. For some features, consents are required for the works and sometimes planning permission is also needed. This is a barrier to farmers initiating projects without assistance. However, there are many measures (especially around soil health) that do not require permissions.

Key learning points on barriers to becoming involved

- Ongoing payments for productive land lost and maintenance of NFM features need to be covered by any E.L.M. scheme payments in order to maximise uptake.
- The NFM measures within E.L.M. that are likely to be more popular will be easy to implement without specialist help or permissions.
- Payment rates that provide an income for the farmer rather than simply covering costs will encourage a higher rate of uptake.

2.2 Barriers specific to Countryside Stewardship

Although there are a number of NFM measures within Countryside Stewardship (CS), many of them are rarely used. The table below shows how many times different CS options have been funded between 2015 and 2019. The total number of CS options funded across England was 452,100 with the most popular being management of hedgerows which accounted for 63,181 of all options. Although hedgerows can be an NFM measure, many of the hedgerow planting and management options funded will not specifically be NFM measures.

The options that specifically relate to NFM such as creating swales, grip blocking, woody dams and creating ponds and bunds are rarely used. As some of these measures are popular within NFM projects that are run at a catchment or sub-catchment level (outside of CS), there is clearly something about the way that NFM measures are presented within CS that makes them unpopular with farmers.

Countryside Stewardship Option	Number of times option used (2015-2019 and percentage of total CS options funded)
BE3: Management of hedgerows	63,181 (14.9%)
BN11: Planting new hedgerows	3,904 (0.92%)
SW4: 12 to 24m watercourse buffer strip on cultivated land	1852 (0.41%)
WT2: Buffering in-field ponds and ditches on arable land	823 (0.18%)
RP5: Cross drains	787 (0.17%)
SW6: Winter cover crops	775 (0.17%)
TE1: Planting standard hedgerow tree	690 (0.15%)
WD1: Woodland creation – maintenance payments	602 (0.13%)
TE4: Supply and plant a tree	467 (0.10%)
WN2: Creation of scrapes and gutters	423 (0.09%)
SW11: Riparian management strip	375 (0.08%)
WT1: Buffering in-field ponds and ditches in improved grassland	174 (0.04%)
SW8: Management of intensive grassland adjacent to a watercourse	150 (0.03%)
RP7: Sediment ponds and traps	80 (0.02%)
RP11: Swales	39 (0.01%)
SW16: Flood mitigation on permanent grassland	37 (0.08%)
RP9: Earth banks and soil bunds	32 (0.007%)
RP12: Check dams	29 (0.006%)
WN1: Grip blocking drainage channels	27 (0.006%)
SW12: Making space for water	21 (0.005%)
RP32: Small leaky woody dams	15 (0.003%)
RP10: Silt filtration dams or seepage barriers	10 (0.002%)
SW15: Flood mitigation on arable reversion to grassland	7 (0.002%)
RP33: Large leaky woody dams	4 (0.0009%)

Participants at workshops were asked whether they had considered CS as a means for implementing NFM and why CS was rejected. None of the farmers or practitioners attending had used CS to fund NFM actions.

Matched funding issues

Practitioners who have been involved in NFM projects that have been funded using European monies have been unable to use CS payments alongside the work they are doing as both are sources of European Union funding. Obviously, this is no longer an issue. However, alternative sources of funding may prevent the take up of any future agri-environment schemes, such as biodiversity net gain and other developer payments and monies from carbon offsetting projects. As yet, it is unclear how funding from multiple sources can be used to fund NFM features.

Strict and outdated specifications

Two practitioners noted that the specifications for CS were both strict and outdated. For example, the leaky woody dams specified were engineered structures whereas the preference today is to use local materials that are less processed to produce these structures. Another noted that the qualifying criteria for who could apply for the NFM measures made them quite restrictive and consequently, unlikely for people to apply for them. Fear of non-compliance and receiving fines was also cited by both farmers and practitioners as reasons for not applying for CS. Dealing with the RPA was cited by multiple farmers in particular for favouring alternatives to CS when installing NFM features.

Knowledge of NFM options within CS

Three participants mentioned that neither advisers nor farmers were generally familiar with the NFM options within CS. When applications are being worked up the options chosen tend to be those that the adviser is familiar with and that farmers and landowners are comfortable with. A local natural England adviser stated that without a concerted promotion and education effort at a catchment or sub-catchment level it was unlikely that NFM measures within E.L.M. would be much more popular than they are in CS.

Lack of flexibility

Several practitioners mentioned that they would have used CS options with farmers but the timing of works being undertaken made it impossible. Some farmers already had CS agreements that couldn't be changed. Two farmers mentioned that the length of time the application for CS takes has put them off and the inability to make changes once a scheme was in place was also a barrier.

Level of complexity

Several of the practitioners stated that farmers would have been put off by the level of bureaucracy required to implement the CS measures and would have opted instead for easier to apply options when putting together a CS application. Getting permissions and possibly planning consent involves a level of complexity that farmers are unlikely to tackle without good advice and guidance.

A preference for catchment or sub-catchment based projects

Several of the farmers had been involved in the installation of NFM measures as they had been approached by a practitioner as part of a catchment or sub-catchment NFM project. They had received site visits and specialist advice before making a decision to become involved in a project. Generally, the organisation running the project paid for the work to be done and arranged all the necessary permissions on behalf of the farmer. This helped to overcome some of the bureaucratic issues but did not allow the farmer to make an income or receive compensation for productive land lost.

Key learning points from take up of Countryside Stewardship options

- A key challenge for any NFM measures within E.L.M. will be to generate enough understanding and awareness of NFM in both farmers and advisers.

- To overcome the complexity of identifying where to locate features and how to gain permissions, levels of advice and guidance required within a target catchment or sub-catchment are likely to be high.
- E.L.M. has the opportunity to provide an income for farmers as well as compensate for productive land lost.

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3 Land management plans

Although many of the discussions within workshops involved talking about the advice and guidance needed to support the take up of NFM, specific discussions around land management plans were limited.

Water Management Plans

This approach was put forward by a third party that delivers NFM projects. It involved a site visit to a farm with a walkover and discussion about the kind of water-based measures that could be adopted on a farm and would result in a plan and a series of suggested E.L.M. actions. This water management plan would include NFM measures but would also look at water storage, recycling, diffuse pollution and other water quality issues. There was general support from other practitioners for this approach with many saying that this is the way that they operated when visiting farms.

Catchment based land management plans

One practitioner mentioned that land management plans would be most effective when designed across a larger area with farmers collaborating to create a plan for a larger area. It would then be more feasible to model the impacts of this work than it would be for a single farm plan. Another suggested that having surface and groundwater protection plans for priority catchments would help to guide advice and help plan features.

In general terms it was felt that help to provide a management plan was important if farmers were to have the confidence to include NFM features in their E.L.M. application.

Three farmers mentioned that they did not want E.L.M. monies diverted away from farmers and felt that with sufficient guidance they were able to write their own land management plans.

Most participants felt that land management plans shouldn't be paid for by farmers.

Key learning points about land management plans

- There is an opportunity for an expert to produce water management plans at both a farm and catchment scale to inform E.L.M. strategies and applications.

4 Advice and guidance

With the exception of three farmers, there was agreement about the need for expert guidance and advice. The comments in the barriers to participation section show how important advice and guidance is to the take up of NFM actions within E.L.M. The advice and guidance can help both promote the concept of NFM in priority areas as well as help farmers to identify which actions might be appropriate for their landholding. As NFM is often not something that farmers are familiar with, advice can be even more important and may need to be long-term in nature as confidence in using NFM measures is built.

At the workshops, a form of mapping called HydroloGIS was shown to participants as well as a tool that could be developed to display the outputs that had been carried out for the Darent Valley. This GIS based system can prioritise areas that are the most suitable for different NFM interventions and then provide information about the NFM feature, payment rates, information about permissions required and other useful information. Participants were asked for their opinion about how useful the GIS tool might be and whether this needed to be augmented with on-the-ground advice or could be used as a stand-alone tool to guide applications.

Information from GIS

Landowners and practitioners both identified mapping/GIS as a highly effective resource for understanding where to target NFM measures. However, both groups suggested that mapping was incapable of capturing local knowledge and circumstances, so should be combined with on-farm advice delivered by a local adviser.

A number of practitioners tended to view mapping/GIS as the foundation for advice and a good way of giving advisers the specialist knowledge they might otherwise lack. Several practitioners suggested that other concerns should be considered when creating the maps, such as Landscape Character (included in the communication tool), heritage and/or ecology.

Landowners liked the mapping, but generally thought that it would be useful for it to include multiple benefits, such as phosphate reductions as well as flooding. All landowners stressed that the mapping was a good start and extremely useful to inform their thinking, but that they would need local advisers to help them make their final decisions on which NFM interventions to create and in which locations. Several farmers and practitioners stressed that farmers know their own land best and that the knowledge of farmers should be used to pinpoint where interventions should be placed.

Several practitioners identified maps as being particularly useful for farm clusters to plan action at landscape scales. Clusters would also require some input from local advisers, but generally the farmers will want to decide their final actions between themselves after considering the maps and advice.

The role of the adviser

Multiple farmers who had been involved with NFM projects and had installed features on their land stated that they only did so because of the adviser. They stated that high levels of support across priority areas will be essential if take-up of any NFM measures within E.L.M. is to be significant. Whilst

mapping and tools may help an adviser to guide and assist a farmer the farmers who expressed a preference (with one or two exceptions) were in favour of receiving support from an adviser. Most of the participants also felt that advice should be free of charge but one stated, “Farmers must learn to value the environmental side of their work. Consultants are often paid to improve levels of productivity and the same approach must be taken to the environment.”

One practitioner mentioned that a little knowledge can be more dangerous than none at all. NFM is still a developing field and evidence is constantly being gathered about the effectiveness of different measures. Both of these issues emphasise the importance of good quality advice.

Case studies that have been written by those delivering NFM using project officers in pilot or area-based schemes were asked about the cost of providing advice. Although the cost varied, both by delivery partner and depending upon the kind of measures installed, the cost of advice and assistance to farmers was approximately half the value of the entire project.

Multiple benefits within guidance

Several practitioners stated that landowners would be more likely to take up NFM if the multiple benefits of interventions were identified, such as water quality, minimising soil erosion and biodiversity. One practitioner noted that biodiversity is particularly important for farmers that have diversified into tourism. One practitioner noted that farm benefits can be persuasive, such as thorny hedges restricting public access beyond footpaths.

Several landowners and practitioners agreed that mapping the multiple benefits of interventions would be a more persuasive way of showing the benefits of NFM actions available through E.L.M.

Several practitioners identified the importance of giving farmers simple information on responsibility for ongoing maintenance of NFM features and liability should these features fail.

Key learning points around advice and guidance

- Significant take-up of NFM based actions within E.L.M. is only likely to be achieved with good quality advice and guidance that both raises awareness and suggests actions that can be chosen by the farmer.
- GIS-based tools can be a useful way of providing advice on which actions can be implemented on a particular land holding, what impact they are likely to have and what other considerations need to be taken into account.
- The multiple benefits of NFM measures can be highlighted by good quality advice and can help to persuade farmers that NFM actions are appropriate.
- The contract to provide advice and guidance could be bid for at a catchment level.

5 Collaboration

If NFM measures are to be effective in providing flood defences for specific properties, there is a need for multiple land holdings to be involved in providing NFM across a sub-catchment. Only by working together can this be achieved. This is linked to the kind of advice that is given and the need for a facilitator or convener to generate interest and collaboration in a given area. It is conceivable that the same person or organisation may provide advice and guidance as well as co-ordinate collaboration.

NFM projects tend to slow water down for only a limited time period. Collaboration is needed between landowners in order to ensure that all of the features don't create secondary flood peaks by all discharging water from temporary storage at the same time.

Cluster groups

Three farmers mentioned the role that cluster or facilitation groups might have if they could be themed around NFM. They would increase the take-up rate of NFM actions by:

- Giving confidence that the measures work by having expert guidance and potentially some modelling of the area.
- Being able to see what their neighbours are doing and having shared goals.
- Having a co-ordinated approach to holding back water and making a real difference to flooding downstream.

Collaboration of professionals offering NFM guidance

Several practitioners mentioned the need for organisations to work more closely together in order to provide advice that generated positive outcomes within catchments. In Kent the South East Rivers Trust, Countryside Management Partnerships, Kent Wildlife Trust, IDBs, Kent County Council, Environment Agency and utilities companies all offer advice and guidance to help more farmers and landowners adopt NFM measures. Catchment partnerships are in existence for most of the drainage catchments in the county but measures that encourage these partners to work together more effectively would be welcomed.

Key learning points about collaboration

- Collaboration is especially important within NFM in order to help plan the impact of actions on areas liable to flooding.
- Collaboration can be a way of increasing both awareness and uptake of NFM actions within E.L.M.

6 Spatial prioritisation

Some actions that provide NFM benefit such as soil structure improvement and winter cover crops are likely to be available everywhere in England through the Sustainable Farming Incentive. However, for many NFM measures there is a need to prioritise where NFM actions are located. This prioritisation is likely to take place at two scales.

The first is identifying catchments and sub-catchments where NFM measures will be available to farmers based on the potential to provide flood protection for specific properties. This is likely to be carried out by the Environment Agency in the first instance with additional input from Nature Recovery Networks at a local level. The second is prioritising where in the identified priority areas are the best places to locate NFM features. This will be the main focus of this section.

HydroloGIS communication tool

At the workshops, a form of mapping called HydroloGIS was shown to participants as well as a communication tool that could be developed to display the outputs. This GIS based system can prioritise areas that are the most suitable for different NFM interventions and then provide information about the NFM feature, payment rates, information about permissions required and other useful information. Participants were asked for their opinion about how useful the GIS tool might be to help them decide where to locate NFM features. Critically, this tool ranks the best areas to locate NFM features to maximise their impact on flood risk.

One practitioner identified the prioritisation of interventions, as shown in the HydroloGIS communication tool, as being particularly important due to some features in some locations being as much as 1000 times as effective as others.

Several practitioners agreed that it is important to give landowners options and that mapping should not be prescriptive. HydroloGIS outputs were seen as good for this, as the ranking gives landowners informed choice; other NFM opportunity maps often lack this ability.

One practitioner identified the flow accumulation network from HydroloGIS as being particularly useful for estimating volumes of water stored by NFM features and the level of liability associated with these features. Several landowners identified the flow accumulation network and natural depressions as being useful for identifying actions other than just NFM, such as water resource supply.

A selection of landowners stated that the HydroloGIS communication tool was 'fantastic', 'simple to understand' and 'useful'. However, they also thought that such mapping should be accompanied with on-farm advice from a local adviser. This would help allay fears and increase uptake of NFM.

Landowners generally found the ranking of NFM interventions to be useful, with one farmer observing that they are used to their land being ranked for its agricultural quality and so would find it useful and intuitive to rank land for NFM.

Numerous landowners and practitioners commented that it is important to consider multiple benefits rather than just NFM. The majority of landowners and practitioners who commented thought that

mapping was a useful resource and necessary to give them technical information, but that local knowledge and information is vital to inform final decisions on NFM design and placement.

The farmer whose land was covered by the communication tool pilot (used at the workshops) stated that the HydroloGIS maps concurred with his knowledge of the land. They seemed accurate and reasonable. However, he did note that the underlying geology of the land meant that water drained very quickly into the fissures and cracks of the rock and only appeared again at the spring line.

One landowner suggested that the tool should identify NFM interventions that could reduce flooding at individual properties.

One practitioner felt that CS uptake was poor in some areas because farmers had to pay upfront for modelling to prove that their proposals would have an impact. This barrier could be eliminated if E.L.M. paid for a catchment-based modelling tool that could not only prioritise intervention locations but calculate the amount of water held back.

Several practitioners and farmers warned against relying too heavily on modelling to both prioritise areas for interventions or payment rates unless confidence levels for the models can be established.

Additional uses for the tool

One workshop had support from multiple participants for targeting fields where better soil management would offer most NFM benefit (this is one of the interventions considered by HydroloGIS).

One landowner suggested that farmers would be more likely to install NFM interventions if they were informed about the likely disbenefits of doing so. The example he gave was that blocking ditches can hold flood waters out of streams but doing so may waterlog arable land and render it unworkable.

Alternative methods for local prioritisation

One practitioner stated that they hoped there could be local input into the prioritisation of NFM features. This may include landowners, highways agencies, parish councils and local residents.

Some practitioners favoured the use of advisers to carry out spatial prioritisation at a local level without the use of mapping which they have found unreliable.

Landscape character

Although landscape character is included as one of the features of the HydroloGIS tool, only one participant at the workshop mentioned landscape character as an issue. They mentioned that generally farmers and practitioners have enough sensitivity to the local landscape not to do things that are detrimental to the quality of landscape character.

Key learning points about spatial prioritisation

- Modelling can be a useful way to identify areas that different NFM measures can be prioritised within a catchment and give information about other considerations.
- Collaborative approaches to prioritisation locally should be explored.

7 Payments for delivering public goods

How payments to farmers will be made was discussed at all the workshops. These discussions ranged from what farmers need to be paid for to how payments are calculated. The message that was repeated multiple times, particularly by farmers, was that simple, clear messaging and advice on payment rates was needed so that they could incorporate NFM into their farm business planning.

Who should be paying for NFM?

Funding for NFM measures can be complex. One participant has been involved in projects looking at how public and private funds can be used together for delivering flood management and the multiple benefits that can derive from NFM measures. It is essential that public money does not distort the private market or that public money isn't paying for things that could be paid for using the open market.

What should farmers be paid for?

There were multiple discussions within the workshops about what farmers would get paid for. As well as the need for payments to reflect lost income from land that is no longer productive and the fact that some NFM measures may require maintenance payments, many people were keen to know if farmers would be paid for ongoing public goods that are in place before E.L.M. is launched. Unless these costs are covered, uptake of NFM measures through E.L.M. is likely to be low whatever payment method is eventually chosen.

One practitioner stated that landowners need to generate income from owning and maintaining areas of valuable habitat. This is the only way to convince farmers to carry out capital works and keep them long enough to get the environmental beneficial impacts. E.L.M. should consider this.

A farmer stated that uptake of NFM measures would improve if farmers can undertake the work themselves to save money or be paid as contractors to install features.

Stand-alone NFM packages

One farmer mentioned that it would be attractive if packages of NFM measures could be taken up at any time as part of a catchment or sub-catchment project that promotes NFM. These agreements could be outside the farm's main E.L.M. agreement and be supported by the appropriate level of advice and guidance by a third party. Several other attendees mentioned that E.L.M. payments needed to be more flexible than is the case within CS at present. Only by providing this flexibility can E.L.M. payments for NFM be used to complement other projects that are taking place.

How should payments be calculated?

The Environment Agency often uses price per cubic metre of water held back as a way of calculating the cost of flood management benefits. One practitioner argued that this methodology is an ideal way of paying for NFM measures. It can even be used to trade benefits within a catchment or could be used for calculating payments that are outside E.L.M. Calculating the amount of water stored is relatively easy to do compared to other payment triggers such as flood prevention. However, several participants pointed out that this method of payment does not take into account the multiple benefits that accrue from NFM measures. Simply rewarding farmers for water held back would not reflect the

true value of NFM. One farmer stated that payment by volume of water stored might work for larger NFM interventions but payment per feature may still be necessary for smaller actions.

Using modelling to allocate payments

The HydroloGIS mapping that was used in the Darent Valley ranks the areas that are most effective for delivering NFM. Some farmers and practitioners showed support for using the HydroloGIS ranking of NFM interventions to vary payments, so that more effective interventions would be paid at a higher rate. Although this adds a layer of complexity to simply paying for the amount of water held back, for some this methodology more accurately reflected the benefit of installing NFM measures. Others stated that there needed to be more confidence in the modelling to allow a tool like this to dictate payment rates.

Clusters bidding for money

One landowner stated that competitive bidding by farm clusters at a landscape scale would be attractive. This would allow farmers to have certainty about income levels and Defra knowing that a certain number of features will be installed in a catchment. The advantage of this system is that payments would be shared amongst the cluster of farmers and Defra would not have to allocate payments.

Key learning points about payment mechanisms

- Whatever payment method is chosen, it must compensate farmers for their time, the capital cost and for the land lost to production. For uptake to be considered by many, an income from implementing NFM measures needs to be derived.
- Payment for amount of water stored during a flood event was the most talked about payment mechanism though there was also support for higher payments in priority areas.
- Clusters of farms bidding for a finite pot of money within a catchment was also proposed.

8 Self-assessed indicators for success

Within the workshops there was considerable discussion about how the success of NFM actions can be measured. Views about how this could be done ranged from methodologies that are relatively straightforward to those that reflect the complexities of the subject and the impact of the interventions. The Yorkshire Dales National Park Authority and the National Trust have been carrying out work looking specifically at this issue and more information can be found at: <https://www.yorkshiredales.org.uk/flood-management-brought-into-elms-test-and-trial/>

Intensity of flood events

The reason that measuring the impact of NFM measures can be so challenging is that it can take a long time to truly test whether a series of interventions actually have an impact on flooding in, for example, a thirty-year flood event. It is also difficult to measure the impact that a single land holding has had during that flood event. Consequently, there was little support for payments being linked to whether specific areas flooded.

Measuring the amount of water held back

The concept that gained the most support at workshops was to measure the amount of water that was held back, as discussed in the previous section. This is something that is relatively easy to calculate by measuring the volumes of water that a feature holds back during a flood event. It is less easy to measure the impact of soil compaction measures or how water is slowed by vegetation. In these cases, calculations can be made based on research that can estimate these attenuation rates.

The desire for simplicity

Although some farmers were open to self-assessment measures the majority of participants both in this test and trial as well as the other two tests and trials conducted by the Kent Downs AONB Unit wanted the entire E.L.M. process to be as simple as possible. The complexity that measuring success adds to the process was generally not welcomed.

Taking multiple benefits into account

Multiple practitioners and several farmers mentioned the difficulty of measuring success purely by the amount of water that is held back by NFM features. One of the reasons cited most often was that the benefits of measures that could be classed as NFM are not restricted to just reducing the risk of flooding. Therefore, assessing their success simply by measuring the amount of water held back does not measure the real benefit. The benefits to biodiversity of planting a woodland on an area that was once arable may be considered greater than the amount of water attenuated. The woodland may also positively impact upon water and air quality as well as sequestering carbon and improving the levels of beauty and engagement.

Key learning points about spatial prioritisation

- There are methods of measuring the amount of water that structures hold back and this is a method that could be used to assess the success of features and generate payments.
- Measuring the success of NFM measures is complicated by the multiple benefits (or public goods) that NFM actions can realise.