

Facilitation Fund Phase 2 Evaluation

Final Report, March 2020

Submitted to: Brian McDonald, Natural England

Prepared by: Naomi Jones, Yiyang Cao, Hannah Adamson, Liz Lewis-Reddy, Andrew Crowe, Ben Hockridge



EXECUTIVE SUMMARY

Introduction

This project aimed to evaluate the success of the Countryside Stewardship Facilitation Fund (CSFF), with respect to both environmental and social capital outcomes and to develop a monitoring framework to assess future group activity. The work assessed groups funded under the first four rounds (2015 – 2017).

At the start of the project, a review was carried out to further develop an evaluation framework and finalise data requirements for future monitoring. The framework is based around a logic model of a CSFF intervention which describes causal linkages and impact pathways (from inputs, outputs to results and outcomes) between the CSFF funding and the achievement of environmental, socio-economic and wider impacts.

Methods

Based on the evaluation framework, a series of data gathering and data analysis activities were undertaken to form the evidence base for the overall evaluation of the CSFF funding. Specifically, these activities included:

- a) Collation of data from group documentation to demonstrate outputs of the CSFF funding.
- b) Exploring the environmental outcomes of the CSFF funding through analyses of Agri-Environment Scheme (AES) uptake associated with groups, alignment of options with targets and risk factors and spatial coherence of AES uptake for a range of biodiversity resources.
- c) Collecting evidence on social and wider impacts as well as supplementing the evidence on environmental impacts through a survey of facilitators and interviews with a selection of land managers.
- e) Exploring contextually specific impact pathways of the CSFF funding by compiling 28 case studies.

Results

1. CSFF uptake and activity

Funding per group member averaged £3,763 (total funding per member) over the life of the agreement and was similar across all tranches of the CSFF from year 2015 to 2018. Smaller groups (c. <15-20 members) had higher per member costs, but feedback from facilitators suggested that outcomes relating to agreement-level activity may be better for smaller groups due to better engagement with a limited number of individuals.

Group size gives an indication of the potential environmental impact of a group and a growth in membership can positively indicate the influence that the group is able to have on their local area. Mean group size at formation was 19 (similar across facilitation tranches) and by February 2019 had increased to 27 indicating a positive trend.

2. Likely environmental impacts of CSFF

The assessment is focused on the likely environmental impacts of CSFF linked to AES implementation.

2.1 Uptake of AES agreements by members

The uptake of AES amongst group members, although high, was perhaps lower than might have been expected, however this may be due to the perceived complexity of Countryside Stewardship (CS) itself.

According to facilitator survey responses this has reportedly discouraged some from entering the scheme.

The presence of existing agreements will be a focus for developing group priorities at group formation, but is likely to limit the landscape-scale implementation of new AES activity in the short term until existing agreements expire. Although there is scope to adjust existing agreements to better deliver group objectives, feedback from facilitators and land managers suggests that this rarely occurred because of the bureaucracy associated with agreement modification. Only 29% of group members had AES agreements which had started after group formation and therefore could have been influenced by the facilitators' input.

Some land managers reported that, because they received support under the CSFF, they felt able to choose more complex options, suggesting that facilitation is enabling more challenging AES delivery. However, this conclusion should be treated with caution due to the small sample size of land managers interviewed.

2.2 Facilitation value for CS uptake

Option richness, diversity and agreement value were used to compare AES agreements within CSFF groups to those in the same National Character Areas (NCAs) that had received no input from the CSFF.

A high level comparison of agreement level option uptake in and out of CSFF groups, indicated that option richness and option diversity were significantly greater in facilitated agreements. This suggests that facilitated agreements were more complex than those which had not received advice through this route, but it is not possible to directly attribute drivers for these differences. Since a large proportion of AES were already in place at group formation, these differences may reflect a predisposition of more environmentally engaged land managers to wish to participate in the Facilitation Fund. Mean agreement value was not significantly different between agreements within and outside the CSFF.

2.3 Alignment of AES option uptake with CS priorities

The alignment of AES activity with local environmental priorities gives an indication of the impact of facilitation on likely environmental outcomes.

Option uptake under Environmental Stewardship (ES) and CS schemes within CSFF groups was assessed against identified targets in the relevant National Character Areas (NCAs) to identify the number of options addressing each priority and identifying which priorities were not covered within group agreements. In areas where resource protection and historic environment priorities were present, these were almost always addressed by the groups' AES uptake against at least one area/feature. Biodiversity priorities were less consistently addressed. Uptake of relevant options where hedgerows and grasslands are a priority was high, although these are covered by options that are commonly included across all agreements and therefore require little modification of agreements to address. Uptake of options relating to a range of Priority Habitats (PH) was less well targeted, but may, in part, relate to the limitations of using targeting priorities at the NCA level, which cannot be resolved in a desk study using the currently available data.

Analysis of option uptake in CSFF groups highlighted a total of 59 CS target objectives across Priority Habitats, resource protection issues, historic environment, landscape features, designated sites, target species, surface water management, and woodland creation. There were 15 target objectives which were addressed by AES uptake in all groups where the target coincided with agreement land, and another 14 objectives where more than 75% of the groups addressed the target at one or more locations. This is a high level analysis of targeting which cannot account for whether the specific features or habitats are present on the land under agreement within the Facilitation Fund groups. It

could however be used to identify potential missed priorities that the Facilitation Fund groups could look to address in new agreements.

2.4 Spatial coherence of options for biodiversity

Subsets of options which have the potential to provide resources for a range of biodiversity priorities were identified. The connectivity of AES options implemented within CSFF groups was compared to the wider local landscape at different spatial scales. Not all scales analysed represent viable connectivity for all groups analysed because larger scales are beyond the distance travelled by groups of species accessing specific resources. The results across individual CSFF groups were variable, but overall the analysis indicated that CSFF group activity has a positive impact on connectivity of resource for almost all group/scales analysed despite the fact that group objectives do not necessarily address all the resource categories considered here. The results indicate an overall positive contribution of the CSFF to better connectivity and thus more resilient landscapes, with potential to improve connectivity for some specific species groups such as pollinators, granivorous birds and waders.

2.5 Alignment of AES option uptake with water quality and flood risk

Alignment of options which mitigate water quality issues and flood risk were further investigated through mapping of risk scores across catchments and overlaying relevant options for a subset of CSFF groups. The outputs vary, but demonstrate some positive alignment of AES options with areas of higher risk for water quality and flooding. Furthermore, where land use change or habitat maintenance is contributing to lower risk some AES options can be seen to positively impact water quality and flooding risk scores.

The risk maps can be used to help identify areas that might benefit from options that contribute to a reduction in risk type. For example, high scoring areas can be examined to identify what might be contributing to the high score (e.g. land use or topography) then an appropriate option can be identified which might help to mitigate these factors.

2.6 Likely environmental impact of CSFF based on views of facilitators and land managers

The online survey of facilitators revealed that only two thirds of the respondents (67%) thought that group plan objectives had at least been partially achieved. However, responses represent views on both implementation of management activity (inputs) and environmental outcomes (results/impacts) and negative responses may simply relate to the fact that environmental outcomes are not immediately realised. Lowest confidence was associated with woodland objectives, but this included concerns over an insufficient area planted and the fact that it was too early to assess success. Biodiversity objectives were most likely to have been at least partially met. However, data must be considered in the context of the facilitators' perspective, which may be more positive than an independent viewpoint.

In addition, greater confidence of land managers, both in understanding of environmental value of habitats/features and in their ability to deliver appropriate management, was reported both by facilitators and land managers surveyed. This is expected to contribute positively to environmental outcomes of facilitated agreements and more widely for land not specifically in agreement.

3. Socio-economic impacts of CSFF

Social capital gains from CSFF group activities relate to increases in land manager awareness, attitudes and capacity to carry out environmental land management activities as a result of CSFF. Direct knowledge exchange is complemented by improvements in social capital, including collaborative working, motivation, information sharing, awareness, ownership, ability and confidence in addressing environmental issues, social interaction and trust.

Evidence on socio-economic impacts was collected mainly through the online survey of facilitators and interviews with land managers in the case studies.

Results from the survey of facilitators suggest that the CSFF has had a relatively positive impact on a wide range of socio-economic indicators. This included increased awareness, expertise and confidence of land managers as well as increased collaboration. In relation to other measures of social capital, the CSFF is reported to have motivated a significant/moderate increase in trust between facilitator and members, social interaction, and information and knowledge sharing.

Wider impacts have typically been reported in the context of the effect that groups have had on members of the public. These results suggest that overall the CSFF facilitates a better engaged, more collaborative farming community that is more environmentally aware.

Land managers that were interviewed to form the 10 in-depth case studies echoed the facilitators' views that the CSFF has had social benefits. These typically related to meeting new people and learning from other land managers through group discussion and interaction. Often, group members were already familiar with each other because they were neighbours. The CSFF has reportedly helped enable social cohesion by providing a justification to get together, where otherwise they would not normally interact to this extent.

4. Success factors, enablers and barriers to achieving CSFF group objectives

Success factors, enablers and barriers to uptake of CSFF support were identified through the online survey of facilitators. Facilitators are likely to view the group activity and impact in a positive light and results of the survey must be considered in this context. However, many of the high level conclusions based on analysis of the data were also echoed by responses from land managers and, although this was a small sample, indications of impacts are positive.

The survey results suggest that additional/external funding to CSFF, the facilitator and training have been the most important enabling factors to achieving group goals.

Facilitators reported external funding as also having a positive motivational factor because it helps to maintain interest in the group and promotes activity. Additionally, those that scored external funding highly suggested that more complex and ambitious projects could be undertaken with the support of additional funding to CSFF.

Facilitators describe their role as very important to the success of the group. They viewed themselves as responsible for promoting the bottom up approach of the Facilitation Fund and being key in creating and maintaining the momentum of the group. This was borne out by the interviews with land managers.

Analysis of facilitator responses found that, with respect to group success factors, trust, relationships, communication, collaboration, and confidence were key.

5. Areas for improvement of CSFF

A few areas for improvement were identified through the survey of facilitators, which include:

- Provision for one to one advice (mentioned by 34% of the survey respondents)
- Simplification/streamlining of CSFF administration to reduce the administrative burden
- Improvement of the claim process to avoid delays in payments.

Other issues raised by facilitators or highlighted from the wider analysis include:

- CS bureaucracy/complexity can discourage uptake
- Limitations in the ability of the CSFF to affect change with respect to AES option uptake or placement because of pre-existing AES agreements
- Ability of groups to access external funding to support objectives was limited by both location (e.g. not an area of concern for water companies) and eligibility (i.e. additional grant support not always available)

- Legacy – CSFF lifespan is short: there is a consensus that for environmental outcomes to be sustainable there is a requirement for continued support in some form.

In addition, to support future monitoring and evaluation, the project team would recommend the following:

- Standardisation of group reporting so that all reporting follows a more consistent format, with key metrics reported in tabular format to allow data to be readily collated and compared across groups.
- More precise detail of priorities should be recorded in the group documentation which can be used to quantify and measure the progress of group activities and achievements.
- Identification of land by holding which will improve the accuracy by which environmental outcomes can be measured and compared between facilitated and non-facilitated agreements.

6. Conclusions

Assessment of actual environmental impacts was beyond the scope of this work, but the various analyses of uptake and option implementation suggest that AES activity on farms participating in CSFF groups should lead to more positive environmental outcomes than AES agreements which have not received CSFF funding. More significantly, there is evidence from both facilitators and a small number of selected group members of wider socio-economic impacts resulting from knowledge transfer and collaboration. In particular, a wide range of social capital benefits are realised including improving trust, communication and land manager confidence in working together to deliver shared environmental outcomes specific to their area.

KEY MESSAGES

Background

After three years' implementation of the Countryside Stewardship Facilitation Fund (CSFF), the scope of the evaluation encompasses assessment of inputs, outputs, some results and limited elements of outputs.

The evaluation framework developed and applied here will allow a more comprehensive assessment of the impact of the Facilitation Fund in future.

Group uptake

Positive group activity is evidenced by an increase in group membership since formation for most groups.

However, the impact of group activity is related to both the reach (group size) and the quality of outcomes at an agreement level; the smallest groups received greatest funding per member, but feedback suggests that environmental outcomes may have been greater, at the agreement level, for groups with smaller membership.

Likely environmental impacts of the CSFF

The link between agri-environment scheme (AES) and CSFF uptake is complex because many agreements were in place before CSFF groups were formed and there has been limited modification to existing agreements.

AES agreements in CSFF groups had greater option richness and diversity than those outside groups. However, these differences may be due to different drivers:

- those with more complex existing agreements are more likely to join a CSFF group
- group members are more likely to adopt more challenging AES options.

Feedback from land managers indicates that facilitation encourages implementation of more challenging AES options, but this conclusion is derived from a small sample size.

AES uptake of options were generally well-aligned with Countryside Stewardship (CS) targeting priorities, particularly for resource protection and historic environment priorities. Some biodiversity priorities were less well addressed, but analysis was restricted by data quality and availability.

Spatial connectivity of subsets of AES options which provide resources for a range of biodiversity groups was generally better in CSFF groups compared to non-facilitated agreements in the wider landscape. Thus the CSFF is contributing to greater landscape scale resilience for biodiversity.

The outputs vary, but demonstrate some positive alignment of AES options with areas of higher risk for water quality and flooding. Furthermore, where land use change or habitat maintenance is contributing to lower risk, some AES options can be seen to positively impact water quality and flooding risk scores.

Two thirds of facilitators thought that group objectives had at least been partially met, although this result may be affected both by a more positive response from facilitators compared to an independent perspective and by a negative assessment because environmental outcomes can take many years to deliver.

Group members had greater knowledge of environmental issues and confidence in delivering appropriate management, which should contribute positively to land management in and out of AES agreement.

Socio-economic impacts

The CSFF had a relatively positive impact on a wide range of social capital indicators. This included increased awareness, expertise and confidence of land managers, increased collaboration, improved trust, social interaction and knowledge sharing.

Despite group members often being known to each other previously, the CSFF has been a mechanism to improve interaction.

Overall, results suggest that the CSFF facilitates a better engaged, more collaborative farming community that is more environmentally aware.

Success factors, enablers and barriers

Although results do not represent an independent view, important enabling factors to achieving CSFF group objectives are: additional/external funding, the facilitator and training. Facilitators considered their role particularly important for promoting a bottom up approach and in delivering group momentum.

In addition, for some groups, external funding has a positive role in motivating and maintaining group activity and may be particularly important in delivery of complex and ambitious projects.

Overall, the most important group success factors were: trust, relationships, communication, collaboration, and confidence.

Potential for improvement of the CSFF

Suggestions for improvement from facilitators/land managers included: provision of one to one advice, legacy support and a wider availability of external funding (public and private).

In addition, a number of administrative issues associated with CS/CSFF, which can discourage uptake, could be improved.

The project team suggest some improvements around standardisation and precision of group reporting which would improve the quality of future monitoring and evaluation of the CSFF.

Conclusions

AES activity on CSFF holdings should ultimately deliver more positive environmental outcomes than on those which have not received CSFF funding.

Wider socio-economic impacts relating to knowledge transfer and collaboration are particularly important outcomes of the CSFF.

CONTENTS

Executive Summary.....	3
Key Messages.....	8
1. Introduction	13
1.1 Objectives.....	14
2. Research Methods	15
2.1 Collation of data from group documentation.....	15
2.2 Spatial data processing	15
2.3 Case studies	15
3. Review of Evaluation Framework	17
4. Likely environmental impact of CSFF through AES option uptake	26
4.1 Introduction	26
4.2 Methods.....	26
4.3 Results.....	30
4.4 Discussion.....	43
5. Socio-Economic Outcomes	47
5.1 Introduction	47
5.2 Methods.....	47
5.3 Results.....	49
5.4 Discussion/Conclusions.....	63
6. Evaluation - Key findings.....	65
6.1 Uptake and coverage (input and output indicators)	65
6.2 Activities and support (input and output indicators)	69
6.3 Outcomes and impacts	70
6.4 Conclusions and recommendations.....	75
7. References	79
Appendix 1 - Collation of data from group documentation	81
Appendix 2 – Spatial data processing	84
Appendix 3 - CS Facilitation Fund Group mean agreement scores for option richness, option diversity and agreement value	87
Appendix 4 – Option group lists for connectivity assessments	90
Appendix 5 – Water quality and flood risk datasets and outputs	91
Appendix 6 – Facilitator questionnaire: Analysis of individual Questions.....	118
Appendix 7 – Interview schedules	141
Impacts of being part of the Facilitation Group.....	152
Appendix 8 - Facilitation Fund Phase 2 Case studies	154

LIST OF ACRONYMS

AEP	Annual Exceedance Probability
AES	Agri-environment Scheme
AONB	Area of Outstanding Natural Beauty
AP	Arable Plants
ARAT	Agricultural Risk Assessment Tool
BGS	British Geological Society
CAP	Common Agricultural Policy
CCRI	Countryside and Community Research Institute
CLA	Country Land and Business Association
CLAD	Customer and Land Database
CROME	Crop Map of England
CS	Countryside Stewardship
CSF	Catchment Sensitive Farming
CSFF	Countryside Stewardship Facilitation Fund
CSFO	Catchment Sensitive Farming Officer
DS	Designated Site
EA	Environment Agency
ELM(S)	Environmental Land Management (Scheme)
ELS	Entry Level Stewardship
EODIP	Earth Observation Data Integration Pilot
ES	Environmental Stewardship
EU	European Union
EWGS	England Woodland Grant Scheme
FC	Forestry Commission
FIO	Faecal Indicator Organism
GB	Great Britain
GDPR	General Data Protection Regulation
GIS	Geographic Information System
GWCT	Game and Wildlife Conservation Trust
HE	Historic Environment
HLS	Higher Level Stewardship
HOST	Hydrology of Soil Types
HT	Higher Tier
LF	Landscape Features
ML	Moorland Line
NB	Nesting Boundary
NCA	National Character Area
NE	Natural England
NFI	National Forest Inventory
NFM	Natural Flood Management
NGO	Non-governmental Organisation
NIA	Nature Improvement Areas
NPA	National Park Authority
NSRI	National Soil Resources Institute
OS	Ordnance Survey
PF	Pollinator Foraging
PH	Priority Habitat
PSM	Propensity Score Matching
RLR	Rural Land Register
RP	Resource Protection

RPA	Rural Payments Agency
RSPB	Royal Society for the Protection of Birds
SBI	Single Business Identifier
SDA	Severely Disadvantaged Area
SG	Summer Granivores
SSSI	Site of Special Scientific Interest
ST	Species Targeting
SW	Surface Water Management/Summer Waders
UKCP	United Kingdom Climate Projections
WC	Woodland Creation
WFD	Water Framework Directive
WG	Winter Granivores
WMC	World Meteorological Centre
WW	Winter Waders
WWNP	Working with Natural Processes

1. INTRODUCTION

The current Agri-Environment Scheme in England, Countryside Stewardship (CS), brings together a range of environmental protection and enhancement measures. Launched in March 2015, the core environmental issues targeted by CS are biodiversity and resource protection. Historic environment, landscape and climate change are secondary objectives. Unlike Environmental Stewardship (ES) CS is a competitive scheme with applications scored against a set of locally defined targeting priorities (available on Magic¹ for individual land parcels and as a 'Statements of Priority' (SoP) reference document for each National Character Area (NCA)).

The CS Facilitation Fund (CSFF) provides funding for individuals or organisations (e.g. a farmer or Non-Governmental Organisation) to bring farmers, foresters and other land managers, within a defined area, together to deliver co-ordinated land management and environmental improvements at the landscape scale. A CSFF area can cover land under existing agri-environment and woodland agreements, common land and land not currently covered by a scheme. It builds on the principles of partnership working, as demonstrated by various other initiatives (e.g. Farm Clusters and the farmer-led Nature Improvement Areas (NIA) to deliver environmental benefits. The priority for this partnership and collective approach is to deliver shared local environmental outcomes that go beyond what could be delivered by individual holdings acting in isolation. It builds on Defra's aims of valuing local knowledge and maximising a combination of land manager knowledge and environmental expertise. Since the CSFF launch, 98 groups have been established. The number of successful applications has been increasing each year. Group membership has also increased over time. CSFF groups include both new collaborations and those which existed prior to CS. Most groups include priorities which encompass multiple environmental issues.

Facilitators work with a group of land managers (farmers, foresters and/or others) to:

- develop cooperation amongst these land managers;
- agree CS priorities with group members from the statement of priorities for the area with a focus on biodiversity and/or the water environment;
- help the group members submit (individual but complementary) CS applications or apply for adjustments to existing ES or England Woodland Grant Scheme (EWGS) agreements;
- support group members by providing them with the relevant skills and expertise that are directly required for delivery of the CS statements of priorities;
- ensure group work complements the local actions of other partnerships and initiatives that aim to deliver CS priorities to maximise complementarity;
- demonstrate what the group is doing differently as a result of the cooperation and the difference that this is making in the delivery of CS priorities through the funded period.

To qualify for funding, a group must undertake activities that are both new to them and selected as a result of collaborative action. These might include aligning management activities across different holdings to deliver at a landscape rather than single-farm scale. This would extend to checking and re-positioning, where necessary, any existing land management activity that is poorly sited, using any new knowledge or expertise that is provided to operate in a different way, or undertaking new or additional activities. As such, agreements developed under CSFF groups should be more closely aligned with CS targeting priorities and present more robust implementation of options at different spatial scales (e.g. within field to spread across multiple holdings). It is not necessary for groups to be composed of contiguous land holdings because benefits may be realised by spatially intermittent intervention.

¹ <http://www.natureonthemap.naturalengland.org.uk/>

Monitoring and evaluation (M&E) is a statutory requirement of the rural development policy of the European Union (EU) Common Agricultural Policy (CAP). As a novel element to AES, it is important to understand the performance of the CSFF and to further develop or refine processes and guidance to improve performance. It is particularly important in the context of EU-exit and the development of land use and environmental protection policy post CAP. This is expected to include new models of delivery which are effective, provide value for money, align with local natural capital priorities, engage widely and incentivise outcomes.

1.1 Objectives

The aims of this work are to evaluate the success of the Facilitation Fund, with respect to both environmental and social capital outcomes and to develop a framework for monitoring which can be used to assess future group activity. The work includes assessment of all groups funded under the first three national rounds (2015 – 2017) and under the 2017 flood-specific application window. It is important to note that only limited information was available for some of the groups formed more recently.

Specific objectives:

- To review and test the proposed M&E framework and indicators (Chapter 3)
- Analyse Agri-Environment Scheme (AES) option uptake (Chapter 4) in terms of:
 - alignment with CS priorities, water quality and flood risk
 - spatial coherence for biodiversity
- Explore the socio-economic impact of the Facilitation Fund (Chapter 5)
- Develop 28 case studies of facilitated groups to illustrate the impacts assessed as part of this study at the group level (separate Word document).

Outputs from all elements of the work are synthesised in an overall evaluation (Chapter 6).

These objectives are delivered through a series of quantitative and qualitative tasks:

- a) Review evaluation framework and finalise data requirements (Chapter 3)
- b) Collate data from group documentation (Outputs provided in additional spreadsheet)
- c) Map AES uptake associated with groups (Separate WebApp output)
- d) Analyse the alignment of AES uptake against CS targeting layers (Chapter 4)
- e) Analyse the spatial coherence of AES uptake for a range of biodiversity resources (Chapter 4)
- f) Assess AES uptake against an analysis of spatially explicit risk to water quality and flooding (Chapter 4)
- g) Conduct a survey of facilitators (Chapter 5)
- h) Conduct a qualitative survey of a selection of land managers (Chapter 5)
- i) Compile case studies (Separate Word document)
- j) Synthesise findings in an overall evaluation (Chapter 6).

Outputs from some of these tasks are presented as stand-alone files/documents (e.g. mapping, case studies). For these elements, methods are summarised in Chapter 2 and presented in more detail in associated appendices. For other objectives presented in this report methods, results and discussion are presented within each chapter.

2. RESEARCH METHODS

In this section we include a brief summary of methods for those elements of the work which are delivered as stand alone outputs, with further detail in appendices. Methods for those elements reported in full here can be found in relevant chapters.

2.1 Collation of data from group documentation

Information on group characteristics was collated from standard Facilitation Fund documentation (e.g. group application, claim forms, group plan) and information provided by Natural England (NE) directly for all 98 groups. Data collated included:

- Funding
- Area covered by the group
- Group formation
- Facilitator characteristics (organisation affiliation, skills and experience)
- Group objectives
- Specified outcomes
- Number and type of events held and level of attendance.

Detail of process, issues encountered and the associated limitations of these data can be found in Appendix 1. The accompanying excel spreadsheet details the full outputs of this element of the study.

Data has been extracted from the sources outlined to gather qualitative and quantitative information on Facilitation Fund groups. Quantitative information for all groups is featured on the group and baseline tab on the excel sheet and on individual group tabs, where detail is also provided on group training activities.

2.2 Spatial data processing

This section summarises the process used to link and present holding/AES agreement information supplied by CSFF groups, with land parcels. Full detail of methods and limitations can be found in Appendix 2. Land parcels associated with each of the 98 Facilitation Fund groups were identified using datasets provided by NE. Parcels in current agri-environment schemes (CS or ES agreements) were mapped, including information on the options contained within. In addition to this, land associated with the group but which is not currently in agri-environment agreement was also identified.

A Web Application (WebApp) was created to display the final Facilitation Fund data that allows users to interact with and interrogate the data. The WebApp includes several tools that allows the user to query and filter the data dynamically to better see the makeup of each Facilitation Fund group than would be possible with a static electronic or paper map.

2.3 Case studies

To provide a group level summary of impacts assessed as part of this study, outputs for the full range of analyses completed under this study were collated as case studies for a selection of groups. A total of 28 case studies were compiled, with the number restricted purely as a result of resource availability. Groups were chosen to reflect the:

- range of geographic regions across England
- different primary objectives of the group
- facilitator affiliation
- length of time receiving funding under the Facilitation Fund.

It is important to recognise the limitations of the case studies. The explanatory text accompanying case study reports can be found in Appendix 8.

Groups were chosen from those that had responded to the online survey. This could be a limitation because it is likely that the most engaged facilitators took the time to complete the survey and responses were generally positive (see Appendix 6). However, two thirds of facilitators completed the survey, suggesting that results were reasonably representative.

Case studies were written based on data collected in the collated excel sheet using information from huddle, the facilitator's responses to the facilitator survey and various analyses of AES option uptake/implementation (see chapters 4 and 5 for detail). The case studies covered the context of the group, how long the agreement is, how much funding the group is expected to receive over its lifetime and size of the membership. Information included on group training events was incorporated into the case studies from data collation of group documentation and from the facilitator's responses to the survey.

In addition to the information collated from the desk-based analyses, for a subset of ten case studies, an interview was conducted with a group member to further explore the perceived and potential socio-economic impacts of the Facilitation Fund.

More detail on land manager interview selection and findings can be found in section 0. Land managers were chosen to participate from a list of ten contact details that were provided by each facilitator and the research team selected a land manager at random from the list. As the ten members were chosen by the facilitator there could be an element of bias, but this was mitigated by the random selection from the shortlist. Due to resource and time constraints this method was viewed as being the most efficient. Land managers who participated in interviews managed a variety of different farms but they were all engaged with the group and positive about the facilitation fund.

Case study information is presented under the following headings:

- **Key learning points**
- **The group** – size, origins, priorities, facilitator experience
- **Option uptake** – AES uptake mapped by option group and with reference to objectives, connectivity for biodiversity resources and, for the more detailed case studies, the coincidence of relevant options with water quality and flood risk areas
- **Training events** – type, objectives and attendance
- **Success and barriers** – derived from the facilitator survey, plus interviews with land managers for the ten more detailed case studies.

The success and barriers of groups included comments about group successes, their hopes for the future and suggestions for improvements to the Facilitation Fund. Social, more intangible, benefits were able to be captured in the case studies and a holistic insight into groups was able to be reported.

3. REVIEW OF EVALUATION FRAMEWORK

At the start of the project, a review was carried out to further develop the evaluation framework outlined in the Phase 1 project. The aim of the review was to refine and implement the evaluation framework in the Phase 2 and for future CSFF group evaluations.

Due to a required turn-around of less than a week, the review relied heavily upon the prior knowledge and experience of the research team and focused primarily upon the two key previous CSFF reports. However, selected references cited in those reports were also viewed, together with selected recent papers identified from a limited search of Google Scholar. In addition, the research team used personal contacts to quickly identify and discuss other recent (including on-going) research. As such, the review could be described as an ad hoc combination of a “non-systematic literature review” and “expert consultation” (see http://www.eklipse-mechanism.eu/expert_group_on_methods).

A few challenges in evaluation of CSFF were identified in the review, particularly relating to measurement of the improvement in environmental outcomes at the landscape-scale and wider socio-economic impacts as a result of CSFF group activities. These challenges include the long timespan for some of the environmental outcomes to be achieved and the difficulties in identifying appropriate counterfactuals to distinguish the effect of the CSFF from other influences. To address these challenges, the review highlighted the importance of using intermediate indicators to judge current progress towards ultimate outcomes. This requires a Theory of Change or Logic Model describing causal linkages based on scientific understanding and/or models.

Overview

The ultimate aim of the CSFF is to improve environmental outcomes at the landscape-scale, by increasing co-ordination between individual land managers such that the area covered collectively by Agreements increases and/or individual Agreements better complement each other. Tailoring of individual Agreements to farm-specific conditions for more local benefits may also improve.

In addition, the process of facilitation may encourage the formation of bonding and/or bridging social capital, possibly leading to improved socio-economic outcomes. For example, increased confidence and knowledge, as well as group cohesiveness, may encourage the development of other activities to generate employment and income streams.

However, evaluating the impact of the CSFF on these outcomes is not straightforward. First, many (but not all) of the desired environmental outcomes will take time to achieve, possibly decades. This means that intermediate indicators have to be used to judge current progress and direction of travel towards ultimate outcomes, which in turn requires a Theory of Change or Logic Model describing causal linkages based on scientific understanding and/or models.

Second, to distinguish the effect of the CSFF from other influences, some form of counterfactual analysis is desirable. This means identifying appropriate comparators to use. Third, monitoring and evaluation are not themselves costless exercises and evaluation effort needs to be efficient and proportionate. Hence, although guided by scientific understanding, the adoption of particular approaches and/or indicators is typically constrained by data availability and by (cash and time) budgets, both in the baseline and going forward.

All of these points are recognised and discussed by both Bennett et al. (2015) and ADAS et al. (2018). In particular, recourse is made to a Theory of Change, candidate indicators are suggested, and consideration is given to counterfactual analysis within budget and data constraints.

Overall, the framework proposed for the Phase 2 Evaluation is consistent with current evaluation practices and is appropriate. However, a few minor points are presented below for further

consideration. These relate to the choice of indicators and their underpinning by a Theory of Change, but also to the administrative ease of gathering and using indicator information.

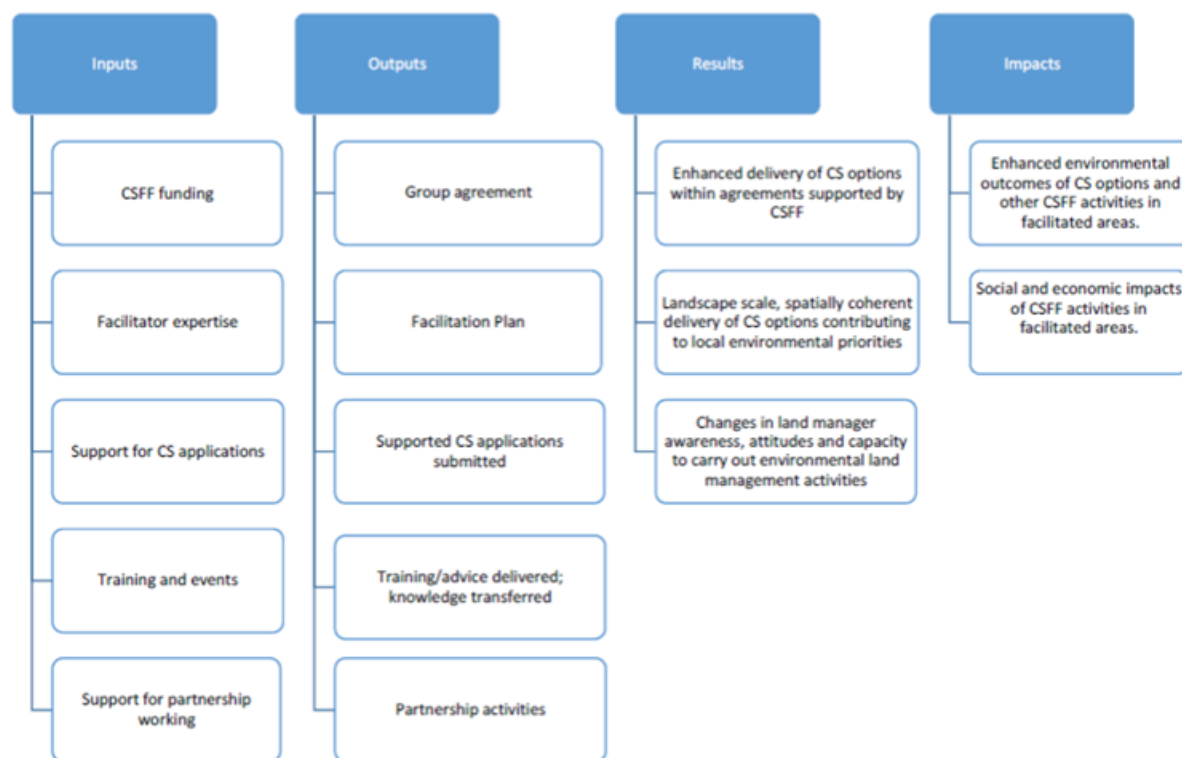


Figure 3-1 Logic Model (ADAS et al., 2018)

Although not explained explicitly in the accompanying text, the inferred causal linkages are clear and consistent with underpinning literature and, moreover, are derived directly from the more detailed presentation of a Theory of Change presented by Bennett et al. (2015). Essentially, funded facilitation can raise awareness amongst farmers of the need for and options to improve collective environmental performance, and then equip/encourage group members to plan and implement changed management in a co-ordinated manner, with such management assumed to (if sustained over time) lead to beneficial outcomes.

This is an appropriate characterisation of how facilitation can be used as a policy intervention and serves as the basis for identifying candidate indicators. Nonetheless, some additions/refinements may be suggested. First, although category boundaries are always fuzzy, it might be helpful to retain the Bennett et al. (2015) distinction between inputs and activities. For example, funding and facilitator expertise are inputs, but support and training are activities.

Second, despite making reference to “realistic evaluation”² (Pawson & Tilley, 1997) and the importance of context, Bennett et al. (2015) did not really explore the conditionality of causal linkages upon local circumstances. For example, the speed and effectiveness with which a facilitated group forms and delivers change may vary across groups because of varying degrees of prior familiarity between group members, leading to differences in observed outputs and results from apparently similar inputs. Equally, the translation of management actions into eventual outcomes will also be influenced by local environmental conditions plus, for example, climate change. The possibility of such mediating effects need to be noted.

² i.e. what works when and for whom?

Third, the assumed link between inputs to outputs depends jointly upon the presence of inputs but also their quality in terms of, for example, the appropriateness of training events and conduct of group meetings. The same applies to the link between outputs and results. For example, relevant content of agreements and plans, not just their existence. The link between results and impacts also assumes that changes in land management are implemented correctly. That is, in all cases, more detail is needed on what is actually done (some suggested indicators do already try to address this).³

Fourth, no mention is made of the likely required duration of support or the likelihood of groups becoming self-sustaining or requiring on-going support. Again, it might be helpful to acknowledge such dependencies.

Candidate Indicators

ADAS et al. (2018) suggest a number of indicators, together with judgement criteria and information sources. Each of these are discussed briefly in turn below (Table 3-1 to Table 3-5), with annotations (in blue) to the original tabular format. Overall, the indicators are appropriate, but a few additions are suggested.

In general, whilst impact indicators are of ultimate interest, attention will necessarily have to focus on more immediately available measures of inputs, outputs and results because time-lags mean that CSFF has not been in place long enough to yield long-term environmental changes. Indeed, the relatively early stage of many CSFF groups means that reliance is primarily upon evidence of instigating change processes that are assumed to be conducive to achieving desired outcomes.

Several quantitative process indicators are available for this. For example, the formation of groups and participation in training and planning events, or the drafting, submitting and endorsement of new CS applications. However, the interpretation of such indicators requires some additional information relating to content and actual actions, ideally against a baseline comparator to reveal changes. This poses a challenge in terms of what data are already available and the effort needed to gather additional information.

Data and budget constraints

Bennett et al. (2015) and ADAS et al. (2018) acknowledged data and budget constraints, concluding that existing data alone, mainly available from CSFF documentation, was insufficient to conduct desired evaluations, but that proportionate use of time and resources would limit further data gathering. The approach proposed under these circumstances was to use case studies and primary surveys to supplement existing data, together with some additional analysis of spatial land management data.

This is an appropriate and pragmatic approach, evident in much of the supporting literature, and offers a means of gathering qualitative insights to support available quantitative metrics. In particular, it allows exploration in greater detail of the nature of change processes brought about by facilitation. For example, the significance of the content of plans, how planning and training events have brought about change, and likely future consequences of the processes now instigated.

However, this imposes an additional burden in terms of gathering data but also in terms of interpretation since such detail is typically qualitative in nature. Given the time and resources available for the Phase 2 evaluation, this poses a challenge – particularly since extraction of existing data from CSFF documentation is relatively labour intensive.

³ The distinction made in ergonomics between tâche (task) and activité (activity), or equivalently between “work-as-imagined” and “work-as done”, may be helpful here.

This suggests that the evaluation exercise should not necessarily include all CSFF Groups, nor necessarily all of the candidate indicators. That is, it may be sufficient to restrict attention to a subset of Groups (particularly for actual case studies) and to prioritise which indicators to consider.

In particular, whilst descriptive indicators can, with some effort, be extracted from existing documentation to provide evidence of inputs, activities and outputs, much of this information is already (implicitly if not explicitly) known by Natural England since it is used to validate payment claims. As such, its collation⁴ will offer few new insights and effort would be better directed towards gaining an understanding of the dynamics of how CSFF groups perform, with a comparison to their own (remembered) pre-facilitation position and/or to non-CSFF groups. This is consistent with the use of selective case-studies and/or surveys of CSFF and non-CSFF facilitators or members.

Counterfactual

Ideally, policy interventions would be evaluated using experimental designs such as Randomised Control Trials. In practice, this is rarely feasible and instead alternative approaches are deployed. This may take the form of a naïve counterfactual, comparing only the before-and-after positions of supported farms, or a more rigorous counterfactual comparison of changes over time between supported and unsupported farms.

For the latter, the comparison requires identification of example supported and unsupported groups that are, prior to the support commencing, similar in selected key characteristics. This pairing can be attempted through statistical techniques, such as Propensity Score Matching (PSM) or more subjective, judgement-based techniques. For example, drawing on literature and researcher experience to identify distinguishing characteristics of groups and then comparing group profiles to select plausible pairings.

However, the accuracy of any matching depends upon both a prior understanding of influential characteristics and adequate data to profile different groups. In the absence of these, the suggestion by Bennett et al. (2015) to accept insights from case-studies as being non-statistically-representative but nonetheless useful in furthering understanding of how facilitation has operated is valid.

⁴ If future summary collation is wanted/needed, it would perhaps be sensible to provide CSFF groups with a more prescriptive reporting template such that submissions from different groups are comparable and can be aggregated.

Table 3-1 Input metrics

Metric	Indicator	Criteria	Data Source	Comment
CSFF funding	Funding per group	Whether the CSFF formula reflects the cost of running the group and is proportionate to the outputs/results	CSFF monitoring data	Funding is a necessary input indicator. Relationship to reported running costs can presumably be checked against documentation, but checking actual costs would require more rigorous (and disproportionate) auditing, or possibly case study analysis. Assessing proportionality to outputs/results will depend on other information.
Facilitator expertise	Range of expertise involved and input to CSFF activities	Whether facilitator expertise has any influence on the outputs within the facilitated area	CSFF group reports, application forms, additional data may be captured through case studies, survey	An example of where quality (as measured by expertise) needs to be known alongside presence of an input (the facilitator). However, comparing qualifications and experience across different facilitators may be difficult. It may be better to consider credibility/trust in facilitator as expressed by group members – but this would require survey or case-study approach.
Group expertise	Range of expertise/experience and time offered by group members	Whether prior expertise has helped (or hindered) group formation and dynamics	Possibly application forms, but more likely cases studies	An additional input indicator that helps to reveal context. Probably requires case-study analysis to explore.
Baseline group familiarity	Prior familiarity of group members with each other and with the facilitator	Whether familiarity has helped (or hindered) group formation and dynamics	Possibly application forms, but more likely cases studies	An additional input indicator that helps to reveal context. Probably requires case-study analysis to explore.

Table 3-2 Suggested Activity Metrics (labelled as Inputs in Phase 1 report)

Metric	Indicator	Criteria	Data Source	Comment
Support for CSFF applications	No. CS applications	Applications supported in relation to target	CSFF monitoring data	The number of applications submitted is a measure of activity, although may be subject to cyclical timing i.e. may have to wait for existing Agreements to expire.
Baseline CS coverage	Baseline agreements in place, and time left to run	Scope for new applications to be submitted	CS data (including spatial)	A desirable context indicator to help interpret number of supported applications.
Training and events	Type of training and knowledge transfer events	Whether the expertise, knowledge, training or advice provided has influenced the activities and outputs within the area	CSFF group reports, application forms, additional data may be captured through case studies, survey	Routine reporting will identify if events have occurred, but not indicate quality or influence. This will require more detail on the content of events but also feedback as to (e.g.) relevance. Ideally, feedback will also be sought after some time has elapsed to check if group members have actually acted on anything learnt e.g. to change management. Case-studies are more likely to deliver this information in short-term.
Partnership working	Range, number and relevance of organisations involved. Number of joint events held	Whether the partnership working has influenced the outputs within the facilitated area	CSFF group reports, application forms, additional data may be captured through case studies, survey	Routine reporting will record if events/joint working has occurred, but not necessarily the detail of what took place. Again, further feedback would be required from group members. Case-studies are more likely to deliver this information in short-term.

Table 3-3 Suggested Output Metrics

Metric	Indicator	Criteria	Data Source	Comment
Group Agreement	Agreement in place	How group operation and processes affect success of the group (recruitment, results)	CSFF monitoring data	Existence of a Group Agreement is a simple indicator, but judging success will require additional information.
Facilitation plan	Plan in place	Fit with NE targeting. Coherence between and realisation of activities	CSFF monitoring data and local environmental priorities e.g. CS statement, local natural capital plans.	Existence of a plan is a simple indicator, but criteria imply need to compare content with other information and to offer judgement on quality/relevance.
Supported CS applications submitted. Endorsed Agreements.	No. successful CS applications supported. Additional land under CSFF agreements	Applications are supported in relation to target. Additional land managed in relation to target. Average value of endorsed agreements	CSFF group reports, application forms, additional data may be captured through case studies, survey	As with equivalent Activity metric above, these are all necessary indicators, but interpretation needs baseline data on existing Agreements. Number of endorsements is of interest, not just applications submitted.
Training/advice delivered and knowledge transferred	No. training events held. No. group members attending events. No. group members receiving advice. Content/topics of training and advice	Whether activities are delivered as set-out in the initial group plan and targets	CSFF group reports, application forms, additional data may be captured through case studies, survey and facilitation plan. Feedback from events	Counts of events and attendance will confirm follow-through on plan/targets. Content/topics will give indication of relevance (but see also Results table below).
Partnership activities	Additional activities beyond CSFF, such as community activities	To what extent has the CSFF group engaged with community actions	CSFF group reports, evaluation forms.	Counts of engagement events will confirm events and attendance will confirm follow-through on some plan/targets. Information of quality of engagement will require surveys or case-studies.

Table 3-4 Suggested Results Metrics

Metric	Indicator	Criteria	Data Source	Comment
Enhanced delivery of CS options within agreements supported by CSFF	Measures of success for options in endorsed agreements	Whether endorsed agreements delivered more environmental benefits at Agreement scale, compared to non-CSFF Agreements	Comparison between endorsed CSFF and endorsed non-CSFF Agreements	Time-lags between changing land management and demonstrable change in environmental conditions mean that not all impacts will yet have had time to materialise (even if land management has changed). Comparisons with non-CSFF areas will be hampered by difficulties in controlling for variation in wide range of variables.
Landscape scale, spatially coherent delivery of CS options contributing to local environmental priorities	Alignment of option uptake and group objectives	Whether CSFF delivered relevant and spatially coherent options within the facilitated areas compared to non-facilitated areas	Spatial analysis of CS agreement monitoring data and comparisons between facilitated and non-facilitated agreements. Parcel/agreement level monitoring. Modelling approaches. Survey of agreement holders	As above. Relevance and coherence presumably judged on appropriateness (based on prevailing scientific understanding and/or modelled results) of management options to be implemented. Evidence of correct implementation will also be required.
Land manager awareness, attitudes and capacity to carry out environmental land management activities	No. members with CS agreements. No members engaging with other environmental initiatives	Evidence of changes in knowledge, skills, and attitudes to the environmental activities and collaboration	Attitudinal survey of land managers	As a precursor to behavioural change, evidence of changes in human and social capital may indicate likely future change. In the absence of baseline measures of these, recourse has to be made to participants' recollection of their previous position relative to current position, either via survey or case studies.

Table 3-5 Suggested Outcome/Impact Metrics

Metric	Indicator	Criteria	Data Source	Comment
Enhanced environmental outcomes of CS options and other activities in facilitated areas	Environmental indicators for biodiversity, water quality etc. at a landscape scale	Whether there are enhanced environmental gains from CS options within facilitated areas compared to non-facilitated areas	Spatial analysis of CS agreement monitoring data and comparisons between facilitated and non-facilitated agreements. Parcel/agreement level monitoring. Modelling approaches. Survey of agreement holders	Time-lags between changing land management and demonstrable change in environmental conditions mean that not all impacts will yet have had time to materialise (even if land management has changed). Comparisons with non-CSFF areas will be hampered by difficulties in controlling for variation in wide range of variables.
Social and economic impacts of CSFF activities in facilitated areas	CSFF expenditure at a local scale (and any multiplier effects). No. of land managers engaged with CS and other initiatives. Additional employment/income arising from enhanced environment	Whether there are wider social and economic advantages including long-term behaviour change	Survey data, case studies. CSFF Group Annual reports. Social Network Analysis	Evidence of wider socio-economic effects unlikely to be apparent from secondary data, so case studies or surveys will be required. Social and human capital result indicators will be relevant to Social Network Analysis.

4. LIKELY ENVIRONMENTAL IMPACT OF CSFF THROUGH AES OPTION UPTAKE

4.1 Introduction

Knowledge transfer and support delivered by the CSFF will promote environmentally sensitive management across all land managed by group members including holdings with no AES and land not associated with options. In addition, some habitats/features are not eligible for AES funding. However, the primary mechanism for achieving environmental benefits under the CSFF is likely to be through management of habitats and features under AES agreement.

AES option uptake associated with both CS and Environmental Stewardship (ES) was therefore analysed against various metrics to contribute to the evaluation of CSFF effectiveness. Analyses completed were:

- comparison of AES agreement characteristics in and out of CSFF
- alignment of relevant option uptake with CS priorities in CSFF groups
- coincidence of options with water quality and flood risk within groups (for a subset of groups)
- comparison of connectivity of options for biodiversity resources in and out of CSFF.

4.2 Methods

Data for all AES options associated with individual groups were collated for CS and ES legacy agreements. ES options were translated into the equivalent CS using information provided by NE for the Implementation project (Jones et al., 2018). ES options with no CS equivalent were excluded from the analyses. See Appendix 2 for detail of methods.

4.2.1 Facilitation value for CS uptake

AES options with the associated payment to be made for the implementation of the option was extracted from the Geographic Information System (GIS) data for each CS Facilitation Fund Group area. Three metrics were compared between the agreements within and outside of the Facilitation Fund groups. The first metric was option richness within agreements. This is a simple count of the number of different options within the agreement. The second metric was option diversity within agreements. This is calculated using the Shannon diversity formula (H , Equation 1) using the number of instances of the R options within an agreement as the prevalence from which the proportions (p) can be calculated. An equitability index can be derived from the Shannon diversity index by dividing by $\ln(R)$.

$$H = -\sum_{i=1}^R p_i \ln(p_i) \quad \text{Equation 1}$$

The final metric is the total value of the agreement. This is calculated by summing the values of payments for all the options within the agreement.

The significance of the differences between the in group and out of group agreements was tested using a Wilcoxon signed rank test for the mean values of the option richness, option diversity and agreement value for the agreements in the CS Facilitation Fund group area that are part of and outside of the group. This analysis was performed using R 3.5.2 (R Core Team, 2018).

4.2.2 Alignment of AES options with CS target priorities

Option uptake under ES and CS schemes within CSFF groups was assessed against identified targets in the relevant NCAs to identify the number of options addressing each priority and identifying which priorities were not covered within group agreements.

The area of interest for each group was determined using a 5% area membership rule for National Character Areas (NCA). This rule defines the Facilitation Fund Group Area that is expected to have the same landscape characteristics and drivers as the Facilitation Fund groups are operating under. The boundary for each Facilitation Fund Group Area is defined by combining NCAs which contain at least 5% of the area under agreement within the Facilitation Fund Group. The selected NCAs for each group were merged into a single polygon feature and appended to an ArcGIS polygon dataset using a python script calling the `arcpy` module to undertake the spatial processing. Although this would normally produce a single polygon defined by adjacent NCAs, it can also lead to the Facilitation Fund Group Area being defined by multiple polygons if the group is facilitated by national bodies (e.g. Butterfly Conservation, National Trust). The Facilitation Fund Group Area were used to identify all the rural land registry (RLR) parcels within the area of interest for each Facilitation Fund group and the targeting information for those parcels were extracted from the 2015 “HAT”⁵ targeting data.

A single lookup table was created by merging the biodiversity and resource protection CS option-targeting layer associations identified in the CS Implementation project (Jones et al., 2018). The CS and translated ES options for each Facilitation Fund group were joined with the CS option-targeting layer lookup table. The joined dataset was then queried against the identified targets in the NCA based Facilitation Fund group area to identify the number of options addressing each priority and identifying which priorities are not covered within the agreements in the group.

4.2.3 Impact of AES uptake on water quality and flood risk

For a subset of groups (ten case studies) water quality and flood risk were assessed using a range of datasets (e.g. land use, slope, soil absorbancy, rainfall) to assess the potential for runoff, diffuse pollution, and river flooding. For each group, the catchment areas that the options fall within were selected, including some catchments upstream or downstream of these catchments where relevant. These were merged to create the study area for each Facilitation Fund agreement. Risk scores were mapped at the 1 km scale and options relevant to risk mitigation were overlayed to assess the potential impact.

Scoring for water quality and flood risk were initially calculated at a CROME cell scale. The Crop Map of England (CROME) is a polygon vector dataset mainly containing the crop types of England. The dataset contains approximately 32 million hexagonal cells classifying England into over 50 main crop types, grassland, and non-agricultural land covers. Each cell covers an area of approximately 0.4 ha, allowing for accurate attribution of the associated data used in the scoring process. Once scores were calculated at the CROME cell scale, the scores were aggregated to a 1 km grid. The datasets used in this analysis are listed in Appendix 5.

4.2.3.1 Water Quality

Land use has a significant impact on water quality, particularly in relation to the inputs of nutrients from fertilisers and manures. The scoring framework for water quality is based on existing research and approaches for identifying opportunities to reduce runoff and diffuse pollution (Knox *et al.*, 2015; McHugh *et al.*, 2002; Rickson *et al.*, 2016; Roquette, 2018). The scoring framework is kept as simple as possible but with sufficient detail to capture the key drivers related to water quality issues associated with diffuse pollution from agricultural land. The scoring is split into two categories of risk factor: inherent and managed. The inherent risk factors are primarily associated with geographical and climatic factors that would not be influenced by land use change. The managed risk category covers those factors that are due to the management of land and would be extremely likely to change with a land use change. The process involves a calculation of inherent and managed water quality risk score for each CROME cell.

⁵ Countryside Stewardship Spatial Targeting Dataset

Inherent Water Quality Risk Factors

The inherent risks included in the scoring framework are slope, runoff history and connection to watercourse. These categories follow the runoff and erosion risk assessment produced by Natural England for the Countryside Stewardship scheme⁶. Steep slopes (>12.3%) are allocated a score of 3, whilst shallow slopes (<5.25%) are allocated a score of 1, with slopes between 5.25% and 12.3% being allocated a score of 2. For connectivity, CROME cells within 10 m of a watercourse are allocated a score of 4, cells more than 10 m, but less than 50 m are allocated a score of 3, cells more than 50 m but less than 100 m, a score of 2, and cells more than 100 m from a watercourse are given a score of 1. These cut-offs are based on expert opinion from research by Knox *et al.*, 2015 and McHugh *et al.*, 2002. As data for runoff history is not available in national datasets, this was replaced by a runoff risk score based on the land use, which mirrored the runoff risk scoring used in the flood risk scoring framework. This is based on Manning's roughness coefficient as a proxy for the likelihood of runoff, based on vegetation type.

Managed Water Quality Risk Factors

The managed risk factors represent those factors that are due to the management of the land and include the loadings of nitrate, phosphorus, sediment and faecal indicator organisms (FIOs). To generate the loadings in a given cell, the methodology developed as part of the Earth Observation Data Integration Pilot (EODIP) project on water quality (Defra SD1703) was used to derive baseline losses of nitrate, phosphorus, sediment and FIOs per hectare of each crop by water management catchment, climate region and soil drainage class based on Farmscoper (Gooday *et al.*, 2014) pollutant loss coefficients. This method was used as it has already been developed to produce a pollutant loss estimate at a CROME cell level. For each pollutant, scores are assigned based on the load using the following categories:

- Nitrate: More than 10 kg/ha scores 4, 5-10 kg/ha scores 3, 0-5 kg/ha scores 2 and 0 kg/ha scores 1
- Phosphorus: More than 0.1 kg/ha scores 4, 0.05 to 0.1 kg/ha scores 3, 0 to 0.05 kg/ha scores 2 and 0 kg/ha scores 1
- Sediment: More than 100 kg/ha scores 4, 10-100 kg/ha scores 3, 0-10 kg/ha scores 2 and 0 kg/ha scores 1
- FIOs: More than 50 x 10⁹ colony forming units (cfus) scores 4, 10 to 50 x 10⁹ cfus scores 3, 0 -10 x 10⁹ cfus scores 2 and 0 cfus scores 1.

Loadings are set to zero for non-agricultural habitats and scaled for in-field land management options such as buffer strips and hedgerows on the basis of proportion of the CROME cell these options are likely to take up.

Overall scoring

To calculate an overall score for water quality, the individual scores for each risk factor are normalised to a 0 to 100 scale. The inherent risk score (excluding runoff) is calculated by multiplying the slope score by the connectivity score. The managed risk score is calculated by summing the values for all of the managed risk factors and then normalising this score to a 0-100 scale by dividing by 4 (the maximum possible sum of scores). The overall water quality score is then calculated by multiplying together the inherent risk score, managed risk score and the runoff score (normalised to a 0-100 scale).

6

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/655393/cs-runoff-and-soil-erosion.pdf

4.2.3.2 Flooding

Land use and flooding are intrinsically related. The scoring framework for flooding provides a comprehensive analysis of the significant factors in a unit of land that affect flooding. The scoring framework is divided into inherent flood risk and modifiable flood risk, to distinguish between factors that are essentially unchangeable, such as natural geography and geology, and factors that can be changed or influenced, such as land use.

Inherent flood risk

The inherent flood risk score uses a source-pathway-receptor model framework. The primary source of river flooding is rainfall. Additional sources of flooding, including coastal flooding and groundwater baseflow, were considered not to be significant influences in most situations and have not been included. The pathway consists of catchment characteristics, such as rainfall runoff and attenuation, which are affected by drainage area, slope, soil absorption, groundwater and soil saturation. The receptor is the land unit of interest and its associated risk of flooding. The risk of flooding has been derived from the Environment Agency's *Risk of Flooding from Rivers and Sea*. A multiplier is applied to account for communities identified as being at risk from flooding, to ensure that these areas are prioritised appropriately.

Modifiable flood risk

The modifiable flood risk score consists of the inherent flood risk, modifiable land use characteristics and a multiplier for prioritisation. Modifiable land use characteristics include a roughness characteristic, infiltration, attenuation and evapotranspiration. Much of this relates to the land use within the land unit. Roughness is identified as a key parameter as it affects the speed of water transmission from rainfall to a waterbody, such that an area with high roughness (such as woodland) would have a delayed and smaller flood peak than an area with low roughness. Roughness is best described by Manning's roughness coefficient, n , which is an empirical factor used in hydrology and hydraulic modelling to estimate the roughness or resistance applied to the flow by the channel (Chow, 1959). Infiltration, attenuation and evapotranspiration all also influence the speed of water transmission and have therefore also been included within the scoring.

The prioritisation factors include prioritisation for woodland creation (Working with Natural Processes (WWNP) Floodplain Woodland Potential) and prioritisation for wetland creation (WWNP Runoff Attenuation Features 3.3%). The prioritisation for woodland creation includes locations where tree planting on the floodplain may be possible and effective to attenuate flooding. The prioritisation for wetland creation includes locations of high flow accumulation where it may be possible to store water and attenuate flooding during high flows.

4.2.3.3 Case study mapping

Study areas were selected by mapping the areas within option for each of the Facilitation Fund agreements. The catchment areas that the options fall within were selected, including some catchments upstream or downstream of these catchments where relevant. These were merged to create the study area for each Facilitation Fund agreement.

The options shown in the maps are those that are relevant to the given risk factor and could contribute to the mitigation of the risk. The CS and ES options included for each risk type are listed in Appendix 5).

4.2.4 Spatial coherence of option uptake for biodiversity resources

Subsets of options which have the potential to provide resources for a range of biodiversity priorities were identified. The connectivity of options within CSFF groups was compared to the wider local landscape at different spatial scales. The connectivity of options within CSFF groups was compared to the wider local landscape at different spatial scales by creating networks with nodes at the option

locations and edges linking nodes where the distance is less than or equal to a defined threshold. The thresholds used in this analysis were 250 m, 500 m, 1000 m, 2000 m or 5000 m. The mean degree (average number of edges connecting to a node in the network) for the network created from the options within the CS Facilitation Fund group were compared to median and 95th percentile values for the mean degree of 1000 randomly generated networks of options that were within the CS Facilitation Fund Group Area but not within the group itself. A more detailed description of the analysis is given in Appendix 2.

4.3 Results

4.3.1 Facilitation value for CS agreements

The mean option richness, option diversity and agreement value scores for the agreements in each of the CS Facilitation Fund Groups is given in Appendix 3. A summary comparison for the agreements within and outside of CS Facilitation Fund Groups within the same CS Facilitation Fund Group Area is given in Table 4-1. The median difference between option richness of the agreements within a CS Facilitation Fund group and those not in the group within the same core NCAs is 2.38 options in favour of the within group agreements (n=94, W=4403, p<0.001). Only five of the groups had a mean option richness lower than the non-group agreements in the related Facilitation Fund Group Area. Option diversity was higher in CS Facilitation Fund agreements than in non-Facilitation Fund agreements within the corresponding Facilitation Fund Group Area (W =4370, n = 94, p<0.001). The median difference of 0.23 is mainly a result of increased option richness with the equitability score not being significantly different between agreements inside and outside of the CS Facilitation Fund Groups (W=1895, n=94, p=0.2). and only six groups having a mean option diversity lower than in the agreements in the related Facilitation Fund Group Area. The total value of the agreements in the groups is not significantly different to those outside of the groups (p=0.281). The median difference between the mean value of the agreements within a group and those outside of the group is £2995, with 42 groups having a lower mean value than the mean value for agreements in the surrounding area that were not part of the group.

Table 4-1 Summary statistics for the option richness, option diversity and agreement value for agreements that are in CS Facilitation Fund Groups and those that are outside of the Group but within the same CS Facilitation Fund Group Area

	Richness		Diversity		Value	
	In CSFF	Outside CSFF	In CSFF	Outside CSFF	In CSFF	Outside CSFF
Minimum	5.78	5.00	1.14	1.08	17560	29529
Mean	10.27	7.67	1.67	1.42	77034	68520
Median	10.04	7.58	1.66	1.43	63584	63219
Maximum	18.00	9.84	2.31	1.68	161988	207693

4.3.2 Alignment of AES options with CS target priorities

In total there were 59 different CS targeting layers covered by the CS Facilitation groups. Twenty-four of these targeting layers were present in all the CS Facilitation groups. Table 4-2 lists the 15 targeting layers that have 100% coverage within the CS groups. Coverage indicates that, if a target was associated with any parcels in agreement, a relevant option (one that addresses the target) has been implemented on at least one parcel with that target. Therefore for example, nearly all groups (94) included land in agreement in the lowland meadows target and all of these addressed this target objective; although only half (45) the CSFF groups had land in the ground water nitrate target zone, all of these groups addressed this target objective on at least one parcel. This includes five priority habitat layers, five resource protection layers, four historic environment layers and one targeting layer for landscape features.

Table 4-2 Targeting layers with 100% coverage within CS Facilitation Fund groups (Type: HE-Historic Environment; LF-Landscape Feature; PH-Priority Habitat; RP-Resource Protection)

Target	Type	Total Groups with Target
Coastal and Floodplain Grazing Marsh (ha)	PH	93
Faecal Indicator Organisms - Bathing waters	RP	53
Good Quality Semi-Improved Grassland (ha)	PH	94
Lowland Calcareous Grassland (ha)	PH	86
Lowland Dry Acid Grassland (ha)	PH	90
Lowland Meadows (ha)	PH	94
Nitrate - Ground water	RP	45
Nitrate - Surface water	RP	92
Pesticides - Surface Water	RP	89
Phosphorus + Sediment - Surface water	RP	94
Priority for Permanent Grassland	LF	94
Registered Battlefields Priority	HE	46
Registered Parks and Gardens Priority	HE	93
Scheduled Archaeological Monuments Priority	HE	94
Selected Heritage Inventory for Natural England Priority	HE	94

Table 4-3 lists the 14 targeting layers that have greater than 75% coverage. To clarify, 94 groups were in areas which are priority for hedgerows and 99% of these groups included options relevant to hedgerows; whereas 94 groups also included areas targeted for ancient woodland, but only 76% of groups included options which would benefit this habitat. This consists of eight priority habitat targeting layers, two landscape feature targeting layers (priority for hedgerows and ancient woodland), two species targeting layers, one historic environment targeting layer and one designated sites targeting layer.

Table 4-3 Targeting layers with >75% coverage within CS Facilitation Fund groups (Type: DS-Designated Site; HE-Historic Environment; LF-Landscape Feature; PH-Priority Habitat; RP-Resource Protection; Species Targeting)

Target	Type	Total Groups with Target	Percent Coverage
Priority for Hedgerow	LF	94	99
Scheduled Building/Structure Monuments Priority	HE	84	95
Grass Moorland (ha)	PH	38	95
Upland Calcareous Grassland (ha)	PH	33	94
Purple Moor Grass and Rush Pasture (ha)	PH	91	93
Calaminarian Grassland (ha)	PH	10	90
Upland Hay Meadows (ha)	PH	29	90
Forestry Commission Red Squirrel Priority	ST	19	89
Limestone Pavement (ha)	PH	16	88
Deciduous Woodland (ha)	PH	94	86
Upland Fens, Flushes and Swamp (ha)	PH	42	86
Woodland Bird Assemblage Priority	ST	92	84
Ancient Woodland	LF	94	76
Sites of Special Scientific Interest	DS	94	76

Table 4-4 lists the 16 targeting layers with between 50% and 75% coverage across the CS Facilitation Fund groups. This includes six priority habitat targeting layers, four landscape feature targeting layers, three woodland creation priority layers, and one each of species, surface water management and designated areas targeting layers.

Table 4-4 Targeting layers with between 50% and 75% coverage within CS Facilitation Fund groups (Type: DS-Designated Site; HE-Historic Environment; LF-Landscape Feature; PH-Priority Habitat; RP-Resource Protection; ST-Species Targeting; SW-Surface Water Management; WC-Woodland Creation)

Target	Type	Total Groups with Target	Percent Coverage
Traditional Orchards (ha)	PH	94	73
Blanket Bog (ha)	PH	36	69
Priority for Winter Stubble	LF	94	67
Upland Heathland (ha)	PH	50	66
Priority for In Field Trees	LF	94	66
Important Area for Arable Plants Priority	ST	47	64
Priority for Ponds	LF	94	64
Montane Heath and Willow Scrub (ha)	PH	8	63
Reedbeds (ha)	PH	73	53
Keeping Rivers Cool Priority	SW	94	53
Woodland Creation for Biodiversity Priority	WC	94	53
Woodland Creation for Flood Risk Management Priority	WC	94	53
Woodland Creation for Water Quality Priority	WC	94	53
Priority Parkland for Landscape Priority	LF	21	52
Nature Improvement Areas Priority	DS	39	51
Fragmented Heathland (ha)	PH	32	50

Table 4-5 lists the 12 targeting layers with less than 50% coverage within the CS Facilitation Groups. These comprise six priority habitat layers, five landscape feature layers, and one species targeting layer. Two target priorities are missing due to no options being associated with the targeting priorities in the lookup table. These are 'Flood and Coastal Risk Management and Physical Modification' and 'Pesticides - Ground water'.

Table 4-5 Targeting layers with <50% coverage within CS Facilitation Fund groups (Type: LF-Landscape Feature; PH-Priority Habitat; RP-Resource Protection; ST-Species Targeting)

Target	Type	Total Groups with Target	Percent Coverage
Lowland Fens (ha)	PH	94	46
Lowland Raised Bogs (ha)	PH	28	43
Lowland Heathland (ha)	PH	83	41
Breeding Waders Priority	ST	94	39
Priority for Stone Walls	LF	94	38
Traditional Orchards for Landscape Priority	LF	94	38
Wood Pasture and Parkland	LF	83	35
Priority for Earth Banks	LF	94	15
Priority for Stone Faced Banks	LF	94	7
Coastal Vegetated Shingle (ha)	PH	15	7
Coastal Saltmarsh (ha)	PH	51	6
Coastal Sand Dunes (ha)	PH	22	5

4.3.3 Potential impact on water quality and flood risk

The risk mapping study has been used to examine water quality and flood risk across Facilitation Fund study areas. By examining the distribution of options within these study areas and with an understanding of their potential influence the water quality and flood risk scoring, it is possible to examine the effect that these options have in reducing these scores and also potentially target areas that might benefit from management.

It should be noted that the effect of some of the options may not be reflected in the risk score mapping, as their properties are not visible/included in the calculation of the risk scores (e.g. hedgerow creation and management). Regardless, the risk maps can be used to help identify where options relating to each risk factor are in relation to high risk, and highlight areas to target with additional option management. Land use and topography have a significant impact on the risk scores for both water quality and flooding. Options relating to land use change or land management, such as woodland creation and management, can be seen to impact on the risk scores. Both water quality and flooding risk have lower scores in areas where these options are present.

The risk maps can be used to help identify areas that might benefit from options that have the potential to reduce the risk type. High scoring areas can be examined to identify what might be contributing to the high score (such as land use or topography), then an appropriate option can be identified which might help to mitigate these factors.

Detail for one group is included below to illustrate the outputs of the analysis. Detailed results for other groups are presented in Appendix 5, with a summary in Table 4-6.

4.3.3.1 Morecambe Bay Facilitation Group - 020001

Water quality options (Figure 4-1) are mainly focused to the west of the study area on the western side of Lake Windermere, where the water quality risk scores are lower than other areas of the study area. The highest areas of risk are in the north-east of the study area, alongside the River Winster and the headwaters of the River Gilpin. These areas of higher risk scores are a result of the steep topography, and the presence of managed grasslands close to watercourses. A number of option areas are spread around the study area include those associated with management of moorland and woodland improvement. The land areas associated with these options appears as areas of lower water quality risk as these land use options help to reduce risk. Risks to water quality to the west of Windermere are also reduced as a result of the significant area of woodland improvement options applied in this area.

To the north-west of River Keer, there are options associated with woodland improvement, and a number of other options such as the restoration of species-rich, semi-natural grassland and restoration of fen. These options all have the potential to reduce risks to water quality. By contrast areas, in the south-east of the study area to where these options have not been applied are registering as high risk.

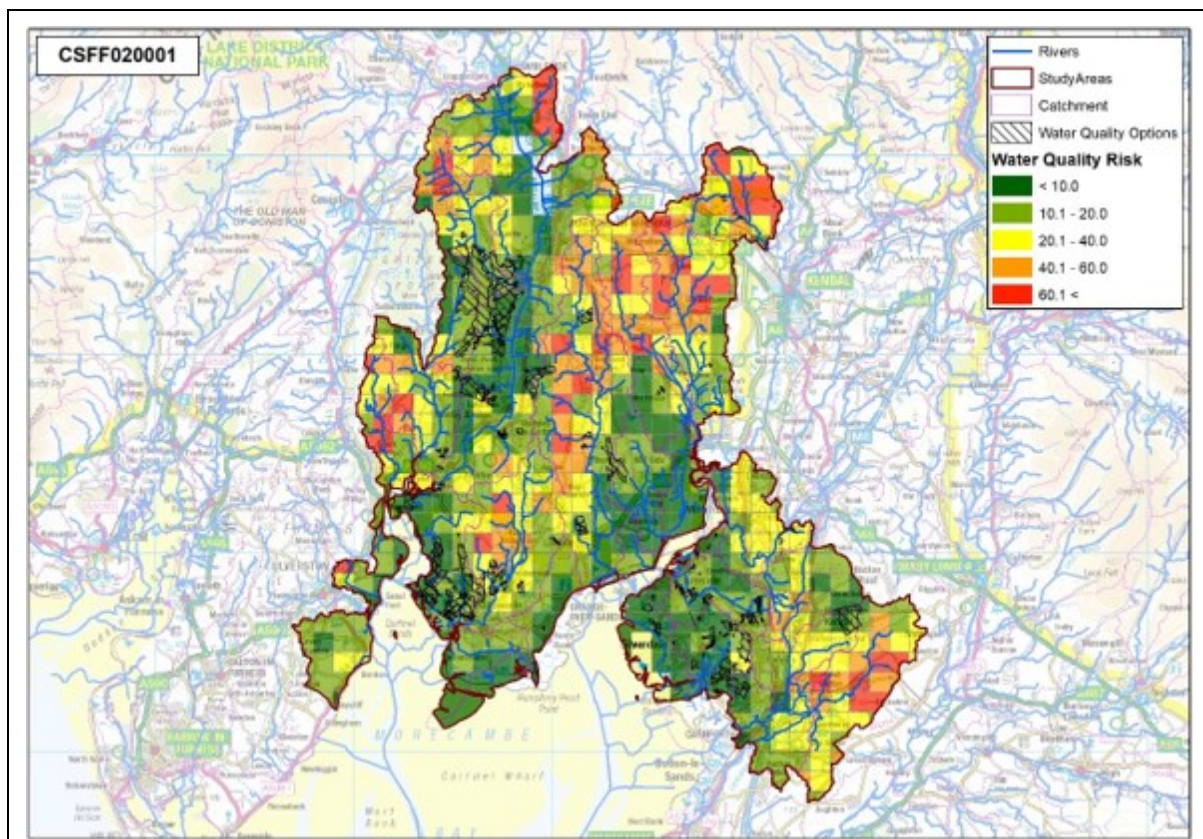


Figure 4-1 Map of water quality and location of water quality options in the CSFF020001 agreement study area

The flood risk varies across the study area (Figure 4-2). A large area of higher risk follows the Lancaster canal in the south-east of the study area. The highest risk is around Holme. To the north of this area, an option for the restoration of wet grassland for breeding waders will help to reduce the amount of runoff in the area. To the west of the canal, options for the restoration and improvement of woodland help to reduce the risk of flooding in this area. This is the same for the area to the west of Windermere, where further options for restoration and improvement of woodland exist. Also in this area are options for the restoration of fen and moorland which can temporarily store water during heavy rainfall.

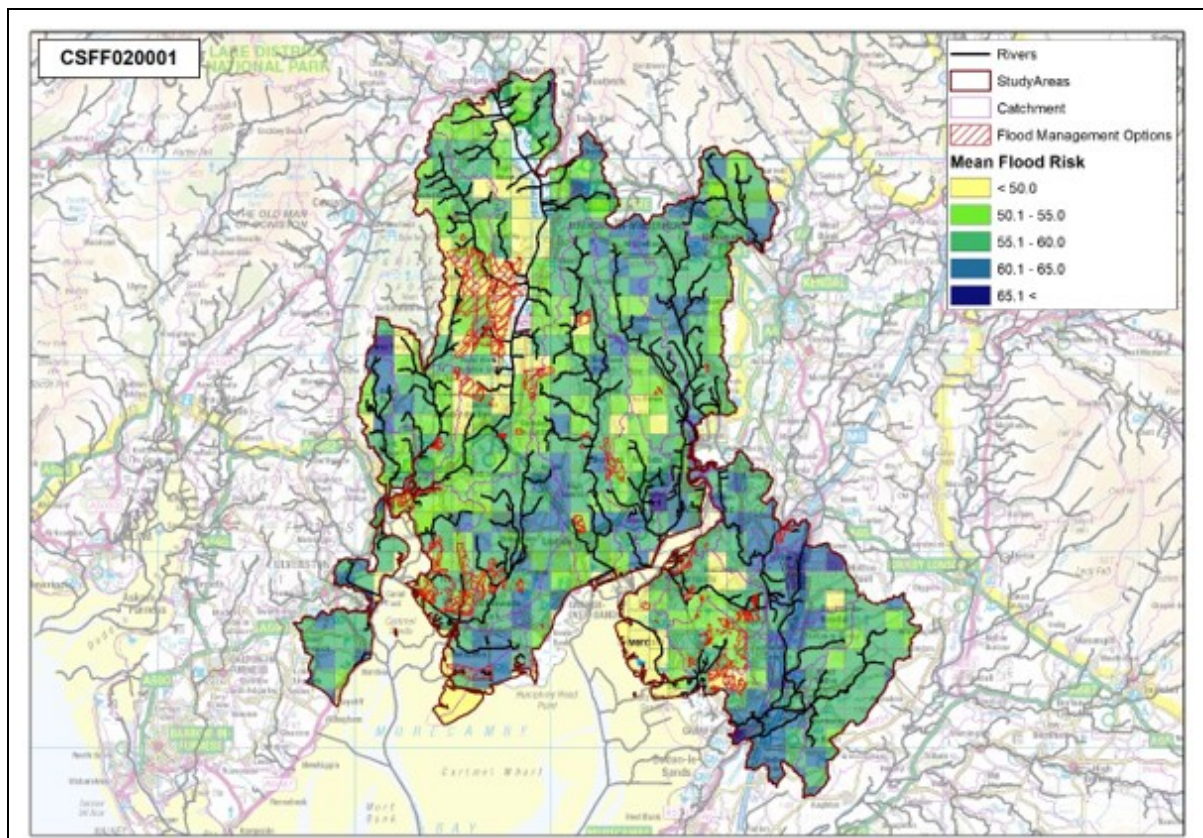


Figure 4-2 Map of flood risk and location of flood management options in the CSFF020001 agreement study area

Table 4-6 Summary of water quality and flood risk outcomes

CSFF Group	Group Primary Objectives (Relevant secondary objectives)	Water Quality and AES Option	Flood Risk and AES Options
Morecambe Bay Facilitation Group - 020001	Biodiversity Woodland Priority Habitats Landscape scale projects	Options in west of catchment helping to reduce water quality risk in an area with a relatively high inherent risk – and in other areas across the catchment.	Options in west of catchment helping to reduce flood risk in an area with a relatively high inherent flood risk – and in other areas across the catchment.
Swaledale - 030011	Water management Soil protection (Water quality)	High risk in west of study area where there are only a couple of options covering a small area. Options further down the same catchment helping to reduce risk and options close to the watercourse to the north helping to reduce risk.	High flood risk in west of study area. Some smaller areas of options but a need for more.

CSFF Group	Group Primary Objectives (Relevant secondary objectives)	Water Quality and AES Option	Flood Risk and AES Options
Hope Valley Farmers – 050007	Biodiversity Water quality	Options in area of highest risk. Some high areas of risk to north of study area where options could be targeted.	Only a small proportion of high flood risk area covered by option.
Churnet Valley Farmers - 060009	Biodiversity Woodland Water quality	Relatively low risk across study area. Options close to water courses helping to keep risk low in these areas. Some areas of higher risk, of which some are covered by options.	Relatively low risk across study area. Some areas of higher risk which do not align with any of the option areas.
Hereford Meadows – 070012	Biodiversity Meadows Plant genetic diversity Engaging wider community (Water quality) (Water management)	One significant area of high water quality risk to the west of the study area with some option cover. Other areas of risk which do align with options.	Relatively low risk across study area. Some areas of higher risk which do not align with any of the option areas.
West Cambs 100s-Bourn Brook - 080001	Woodland Water quality Hedges	Low risk across study area. Options concentrated in one area of slightly higher risk.	Low risk across study area. No options within some of the higher risk areas
Thames Farmers' Conservation Group - 100002	Biodiversity (Water)	Low risk across study area. Options located close to watercourses to help reduce risk. Some high areas of risk in east of study area with no options.	Low risk across study area. No option in areas of higher risk.
East Devon Farmers Group – 120003	Biodiversity Woodland Water quality Historic environment Landscape Water Soil	Options around high areas of risk in west of study area. Potential for more options in east of study area close to watercourses.	Higher flood risk in east of study area where an increase in flood management options would be beneficial.
Selborne Landscape Partnership - 130001	Biodiversity Woodland Landscape Community Involvement (Water quality)	A number of options centred around an area of relatively high risk.	A number of options centred around an area of relatively high risk. Some other areas of higher risk could be targeted.
Arun to Adur Farmers Group – 140002	Biodiversity Water quality Soil quality (Water management)	High concentration of options across study area that help to keep risk low. Some opportunity for options close to watercourses in the east of the study area.	High concentration of options across study area that help to keep risk low. Some areas higher up the catchments where options could help with water management.

4.3.4 Spatial coherence of AES options for biodiversity resources

The connectivity score classifications for the individual groups in comparison the 1000 random networks derived from all agreements within the Facilitation Fund group area for each option group is given in Supplementary Material S1 (additional excel file).

4.3.4.1 Options for Arable Plants

In total 56 of the 94 CS Facilitation Fund groups had zero connectivity at all scales for arable plant options. Twenty-three groups showed significantly higher connectivity for at least one threshold distance when compared to random networks taken from all agreements with three of the groups showing significantly higher connectivity for arable plant options for all distance thresholds. Table 4-7 summarises the Facilitation Fund group scores by distance threshold. The number of groups showing significantly higher connectivity is relatively stable for threshold distances between 250 m and 2000 m, however the composition of the groups does vary across the thresholds. However, functionally relevant threshold distances for arable plants are very low. Relatively few of the Facilitation Fund groups have a connectivity score that is below the expected score for the Facilitation Fund group Area.

Table 4-7 Counts of connectivity score classifications at each threshold distance compared to random networks taken from all agreements in the CS Facilitation Fund group area for arable plant options.

Connectivity Score Classification	Threshold Distance (m)				
	250	500	1000	2000	5000
0	80	71	65	60	56
-	0	1	2	2	1
m	0	0	0	0	0
+	5	14	18	24	21
++	9	8	9	8	16

4.3.4.2 Options for Hares

In total, 26 of the 94 CS Facilitation Fund groups had zero connectivity at all scales for options for hares. Twenty-five groups showed significantly higher connectivity for at least one threshold distance when compared to random networks taken from all agreements but no groups showed significantly higher connectivity for all distance thresholds. Table 4-8 summarises the Facilitation Fund group scores for options for hares by distance threshold. The number of groups showing significantly higher connectivity is low for threshold distances between 250 m and 1000 m, increasing when a threshold of 2000 m is reached and almost doubling again at the 5000 m threshold. A substantial number of the groups show lower than expected connectivity for options for hares at the 500 m, 1000 m and 2000 m thresholds. The composition of the lower than expected groups for these three thresholds varies, with only six Facilitation Fund groups consistently below the expected level of connectivity at all three thresholds.

Table 4-8 Counts of connectivity score classifications at each threshold distance compared to random networks taken from all agreements in the CS Facilitation Fund group area for options for hares

	Threshold Distance (m)				
Connectivity Score Classification	250	500	1000	2000	5000
0	55	41	36	30	26
-	1	13	16	15	6
m	13	7	2	5	2
+	22	31	34	32	39
++	3	2	6	12	20

4.3.4.3 Options for Boundary Nesting Species

Only one of the 94 CS Facilitation Fund groups had zero connectivity at all scales for options for boundary nesting species (options included relate to boundary hedgerow features/scrub). Thirty-seven groups showed significantly higher connectivity for at least one threshold distance when compared to random networks taken from all agreements, but only one group showed higher than expected connectivity across all threshold distances. Table 4-9 summarises the Facilitation Fund group scores for the boundary nesting species options. Seven out of the eight groups which are significantly more connected than expected at the 500 m threshold are also more highly connected at the 1000 m threshold, 10 of the 12 groups more highly connected at the 1000 m threshold are also more highly connected at the 2000 m threshold and all 18 groups which are significantly more connected at the 2000 m threshold are also significantly more connected at the 5000 m threshold. Conversely 14 of the groups which have lower than expected connectivity at the 250 m threshold also have lower than expected connectivity at both the 500 m and 1000 m thresholds and 10 of those 14 also have lower than expected connectivity at the 2000 m threshold. This suggests a relatively high stability to the connectivity within groups across scales.

Table 4-9 Counts of connectivity score classifications at each threshold distance compared to random networks taken from all agreements in the CS Facilitation Fund group area for options for boundary nesting species

	Threshold Distance (m)				
Connectivity Score Classification	250	500	1000	2000	5000
0	10	8	4	2	1
-	34	32	32	26	19
m	3	1	1	1	1
+	44	45	45	46	40
++	3	8	12	19	33

4.3.4.4 Options for Field Nesting Species

Fifty-two groups showed significantly higher connectivity for at least one threshold distance when compared to random networks taken from all agreements, with three groups showing significantly higher connectivity for all distance thresholds. Table 4-10 summarises the Facilitation Fund group scores for options for field nesting species by distance threshold. The lower and non-significantly higher connectivity is stable at the 250 m and 500 m thresholds. The transition from the 500 m

threshold to the 1000 m threshold leads to 18 Facilitation Fund groups moving from being classed as having lower than expected connectivity to having higher than expected connectivity, with an additional 10 and 13 Facilitation Fund groups switching at the 2000 m and 5000 m thresholds respectively. The number of groups with significantly higher connectivity than expected is low for the 250 m and 500 m thresholds begins to increase with the 1000 m threshold and then rapidly increases at the 2000 m and 5000 m distance thresholds, with more Facilitation Fund groups moving from the non-significantly to significantly higher class than being replaced by groups moving from the lower than expected grouping to the non-significantly higher grouping at these scales.

Table 4-10 Counts of connectivity score classifications at each threshold distance compared to random networks taken from all agreements in the CS Facilitation Fund group area for options for field nesting species

Connectivity Score Classification	Threshold Distance (m)				
	250	500	1000	2000	5000
0	2	0	0	0	0
-	49	48	31	22	8
m	2	2	1	1	0
+	36	38	52	44	36
++	5	6	10	27	50

4.3.4.5 Options for Pollinator Foraging

Seventy-one groups showed significantly higher connectivity for at least one threshold distance when compared to random networks taken from all agreements, with three groups showing higher than expected connectivity across all threshold distances. Table 4-11 summarises the Facilitation Fund group scores for the pollinator foraging options. The number of groups with lower than expected connectivity falls rapidly as the distance thresholds get larger, while the number of Facilitation Fund groups with non-significantly higher than expected connectivity initially increases between the 250 m and 1000 m thresholds. The number of groups with significantly higher connectivity than expected increases slowly between 250 m and 1000 m thresholds and more rapidly at the 2000 m and 5000 m thresholds. This increase at the larger threshold distances for the significantly higher class occurs at the same time as the number of Facilitation Fund groups in the non-significantly higher classification decreases.

Table 4-11 Counts of connectivity score classifications at each threshold distance compared to random networks taken from all agreements in the CS Facilitation Fund group area for options to support pollinator foraging

Connectivity Score Classification	Threshold Distance (m)				
	250	500	1000	2000	5000
0	0	0	0	0	0
-	51	43	21	6	2
m	4	1	1	2	0
+	35	40	57	45	22
++	4	10	15	41	70

4.3.4.6 Summer Options for Granivores

Sixty-five groups showed significantly higher connectivity for at least one threshold distance when compared to random networks taken from all agreements, with four groups showing higher than expected connectivity across all threshold distances. Table 4-12 summarises the Facilitation Fund group scores for the options to support granivores in the summer. The number of groups with significantly higher than expected connectivity increases as the threshold distances increase. Likewise, the number of groups with lower than expected connectivity decreases as the threshold distances increase. For the non-significantly higher than expected class, the number of Facilitation Fund groups peak at the 1000 m threshold.

Table 4-12 Counts of connectivity score classifications at each threshold distance compared to random networks taken from all agreements in the CS Facilitation Fund group area for options to support granivores in the summer

	Threshold Distance (m)				
Connectivity Score Classification	250	500	1000	2000	5000
0	0	0	0	0	0
-	54	49	26	9	1
m	6	2	1	1	0
+	27	31	52	48	32
++	7	12	15	36	61

4.3.4.7 Summer Options for Waders

Thirty-eight of the 94 CS Facilitation Fund groups had zero connectivity at all scales for options for supporting waders in the summer. Twenty-four groups showed significantly higher connectivity for at least one threshold distance when compared to random networks taken from all agreements, with three groups showing higher than expected connectivity across all threshold distances. Table 4-13 summarises the Facilitation Fund group scores for options that support waders during the summer. The memberships of the connectivity classes are relatively stable between the thresholds of 250 m and 2000 m. At the largest threshold distance of 5000 m, the number of significantly more connected groups increases while the numbers of groups with lower than expected connectivity and non-significantly higher than expected connectivity both reduce.

Table 4-13 Counts of connectivity score classifications at each threshold distance compared to random networks taken from all agreements in the CS Facilitation Fund group area for options to support waders in the summer

	Threshold Distance (m)				
Connectivity Score Classification	250	500	1000	2000	5000
0	47	40	38	38	38
-	11	15	14	11	8
m	1	1	5	5	4
+	29	28	29	28	22
++	6	10	8	12	22

4.3.4.8 Winter Options for Granivores

Twenty-five of the 94 CS Facilitation Fund groups had zero connectivity at all scales for options for supporting waders in the summer. Twenty-five groups showed significantly higher connectivity for at least one threshold distance when compared to random networks taken from all agreements, with one group showing higher than expected connectivity across all threshold distances. Table 4-14 summarises the Facilitation Fund group scores for options that support granivores during the winter. The number of groups with zero connectivity reduces as the threshold distances increase. In comparison the number of groups with non-significantly higher connectivity than expected increases with increasing threshold distance. The membership of the significantly higher connectivity than expected class is not stable, with significant number of groups moving in and out of this class at different distance thresholds.

Table 4-14 Counts of connectivity score classifications at each threshold distance compared to random networks taken from all agreements in the CS Facilitation Fund group area for options to support granivores in the winter

	Threshold Distance (m)				
Connectivity Score Classification	250	500	1000	2000	5000
0	50	36	32	28	25
-	1	14	17	16	6
m	15	8	2	3	1
+	21	32	35	34	41
++	7	4	8	13	21

4.3.4.9 Winter Options for Waders

Seventy-one of the 94 CS Facilitation Fund groups had zero connectivity at all scales for options for supporting waders in the winter. Seven groups showed significantly higher connectivity for at least one threshold distance when compared to random networks taken from all agreements, with two groups showing higher than expected connectivity across all threshold distances. Table 4-15 summarises the Facilitation Fund group scores for options that support waders during the winter. The connectivity for the winter options for waders remain relative stable across spatial scales. There is a small reduction in the number of groups with zero connectivity as the threshold increases. The groups that become connected as the threshold distance increase nearly all move into the non-significantly higher than expected connectivity class, with only one occurrence where a group goes from unconnected to having the median level of connectivity.

Table 4-15 Counts of connectivity score classifications at each threshold distance compared to random networks taken from all agreements in the CS Facilitation Fund group area for options to support waders in the winter

	Threshold Distance (m)				
Connectivity Score Classification	250	500	1000	2000	5000
0	78	75	73	73	71
-	1	1	1	1	0
m	0	0	0	2	2
+	12	13	16	13	16
++	3	5	4	5	5

4.4 Discussion

4.4.1 Facilitation value for CS

The analyses have been high-level without controlling for differences in area under agreement, habitat diversity under agreement, or farm types. This high-level analysis indicates that CS Facilitation Fund agreements tend to be more diverse with a greater mix of options than agreements outside of Facilitation Fund groups. The value of the options chosen for an agreement are no different on average for a CS Facilitation Fund agreement than for agreements not in a Facilitation Fund group. The drivers for these results are difficult to directly attribute. The increased diversity of options may be due to the choice of which agreements were invited into the group when it was formed. Alternatively, it could be a direct impact of the group on option choice for new CS agreements. A deeper analysis is required to compare agreements within the Facilitation Fund group that were created after the group was formed to those that were created before the formation of the group in order to understand where the difference in option count and diversity originates. The lack of a significant difference in total value of agreements in and outside of the Facilitation Fund groups may be due to agreements being optimised based on the minimum and maximum quantities for options specified in the guidelines for agreements. Specifically, the scheme is non-competitive and so there is no incentive to include additional options in the agreement, which would increase the value of the agreement, once the eligibility requirements are met. The tendency for CS Facilitation Fund agreements to have increased option richness and diversity but the same agreement value indicates that the agreement holders inside and outside of the groups behave similarly with respect to the operational aspects of the scheme, but the agreement holders within the groups may be willing to put more weight on the ecological and environmental benefits that come with richer and more diverse agreements in considering the trade-off with potentially increased operational costs from having a more complex agreement.

4.4.2 Alignment of AES options with CS target priorities

It has not been possible for the coverage for each of the priorities to be examined in depth. The following discussion is focused on pulling some more general patterns out of the targeting for thematic groups of priorities.

All of the resource protection priority targets are fully covered with appropriate options in all groups where there is a resource protection priority. This may be related to a high awareness of resource protection issues due to the requirement to have Catchment Sensitive Farming officer (CSFO) signoff on agreements in the priority areas. Historic environment is very well covered with four out of the five priority having a 100% coverage where a Facilitation Fund group contains land with that priority. Only the Scheduled Building/Structure Monuments Priority fall below 100% coverage, but this is only missed in four of the 84 groups where it is a priority. Grassland targets are also very well covered by the Facilitation Fund groups, with all grassland priority targets achieving 90% coverage or better.

Priority for hedgerows is highly covered, which may be expected as hedgerow management options are very commonly chosen across all agreements. The deciduous woodland priority, ancient woodland and woodland bird assemblage are all well covered and only overlap thematically on the WD2 option. However, further spatial analysis is needed to examine the spatial overlap of the three priorities themselves to assess how much of the correlation comes from the location of WD2 options and the intersection of the priority layers.

The coverages for the designated site priorities (Sites of Special Scientific Interest (SSSI) and Nature Improvement Areas (NIA)) are probably a misrepresentation of true coverage as the only option associated with the SSSI priority (using the option-priority associations from the CS implementation project) is WD2 while the two options for NIAs are WD1 and TE4. Given that SSSI and NIA land could cover a number of different habitats, the coverage for these priorities may be more difficult to assess

accurately than some of the other priority layers because the options would need to be matched up to the particular habitat at each location.

The medium coverage (50-75%) priorities span a range of types and habitats. Of note is that all the woodland creation priorities are within this grouping and all with the same coverage. This again needs further investigation to ascertain the level of spatial and option overlap of the three layers. For the medium coverage priority habitat targeting, some of the missed targets may be due to inaccuracies in the mapping of the priority habitats such that the location may not actually be the priority habitat of interest. However only surveying the habitat under agreement can definitively tell whether this is a true missed opportunity or the result of mis-mapping.

The priority layers with poor coverage (<50%) include six priority habitats which are associated with very low productivity land. The priority layers may cover agreement areas which are not under a related land-use, in which case the options directly related to the priority layer may not be suitable for the land under agreement. For landscape features it is more difficult to find a reason for why these are not under option in so many cases. A proportion of the missed targets could be due to the priority layers being based on imperfect data and the particular features which have management or restoration options not being present. However, as both earth banks and stone-faced banks have creation options, it should be possible for agreements in these target areas to create these features if they are not already present.

4.4.2.1 *Suggestions for future analysis*

Based on the discussion above we have identified the following analyses that would provide more insight into the targeting of CS Facilitation Fund agreements.

1. Investigate the inter-relationship between woodland targeting priorities.
2. Improve on the analysis of designated sites targeting. One way that this may be done is by using the SSSI or NIA priority in combination with the priority habitat target layers to confirm that the appropriate option for the habitat is present.

4.4.3 Potential impact on water quality and flood risk

For the majority of the case studies, a number of the options in place align well with areas that are of a high risk of water quantity and flooding issues. For water quality, areas with a high inherent risk are close to the watercourses and/or on steep areas of land. For the facilitation groups where water quality is a priority, a number of options have been sited in close proximity to water courses. In a number of cases, these options can be seen to have a positive effect in reducing risks to water quality (i.e. the risk score is lower in these areas as a result of the land management practices despite high inherent risk factors). For example in the Morecambe Bay Facilitation Group study area, woodland management to the west of the study area is helping to reduce water quality risk in an area with a relatively high inherent risk. Here, their priority objective relating to woodland is also having a positive effect on water quality and flood management. This analysis has also highlighted where groups have the opportunity to increase in the number of options in high risk areas. For example, in the west of the Swaledale study area, there is a high density of watercourses where an increase in appropriate options would help to reduce the inherent risk to both water quality and water management.

4.4.4 Spatial Coherence

The connectivity analysis was performed on measures of the structural connectivity of the option network. This measure does not account for functional connectivity where species specific dispersal characteristics can alter the cost of movement between patches within the network. The discussion below attempts to put this structural connectivity into context with the home range and dispersal distances for the species groups concerned.

Arable plants is a diverse group of species and able to exploit connectivity at a variety of spatial scales. Species with wind-dispersed seeds and pollen are likely to be able to exploit networks with relatively large connectivity distances (>1000 m), while those species that rely on animal (particularly insect) - mediated processes may require connectivity at shorter distances. However, as a group, arable plants are largely not wind pollinated or dispersed, therefore functional connectivity will only be important at the lowest threshold distances. A large number of the Facilitation Fund groups do not contain options for arable plants, which reflects the low uptake of these options in CS⁷. However, those that do usually have better connectivity at all distance thresholds compared to agreements in the wider landscape. These results indicate that when applied in areas where arable plant options are part of agreements, the Facilitation Fund is expected to have a small positive effect on the conservation of arable plants which largely do not rely on wind for pollination or dispersal.

Connectivity for hares is likely to be more important at the lower threshold distances as home range sizes for European Hares are in the magnitude of tens of hectares (Smith et al., 2004), therefore sub-1000 m connectivity is likely important. However, some longer range connectivity may be important in terms of natal dispersal (which typically is in the range of 1000-2000 m for individuals permanently moving away from their natal home-range, but can be greater than 17 km (Bray et al., 2007)) between unrelated groups to prevent inbreeding within populations. The results of the network analysis show there are many groups where the connectivity at the 250 m and 500 m thresholds is better than expected, though rarely to a statistically significant degree. At the 2000 m and 5000 m thresholds about half of the Facilitation Fund groups have higher connectivity than expected for agreements in the wider landscape for options which support hares. A sizeable minority of these are significantly more connected than expected at these larger thresholds. The results are mixed at the shorter connectivity thresholds, so it is not possible to generalise whether the Facilitation Fund enhances conservation of hare populations through the presence of options within the home range. However, at the larger threshold distances representing connectivity for inter-population mixing, the evidence is stronger that the Facilitation Fund helps in maintaining healthy populations of hares.

Boundary nesting species comprise birds and insects and require connectivity to support collection of nesting materials and food resources during the nesting period. Therefore, we are more interested in the connectivity at shorter distances than at longer ones. Having said that, stability in the number of groups showing higher connectivity across spatial scales indicates support for home range activities, such as foraging, and for dispersal following the nesting period for those species that do so. Relatively few groups have significantly higher connectivity than expected at the 200 m and 500 m thresholds, while just under half of the groups have slightly higher connectivity than expected at these thresholds. However, about a third of the groups are less well connected than agreements in the wider landscape at the 200 m and 500 m scales. Hedgerow management (BE3) is the second most common option implemented in CS (Jones et al., 2018), therefore this option is likely to have an important impact on connectivity for this species group. Therefore, it is difficult to identify whether the Facilitation Fund is having a net positive affect on supporting populations of boundary nesting species.

Options for field nesting birds are focussed on providing suitable nesting habitat within the landscape matrix. In this case connectivity will primarily be related to field nesting species being able to locate alternate sites within the landscape if individual locations become overpopulated or unsuitable. This makes the connectivity thresholds at 1000 m, 2000 m and 5000 m the more important scale, as patches at these distances would be discoverable within the flight distance of individual birds but give sufficient spatial distance to make the patches relatively independent of each other in relation to the factors driving suitability at each location. The majority of groups provide higher than expected connectivity at these larger scales suggesting the Facilitation Fund has a positive effect on conservation of field nesting species.

⁷ Analysis of CS data for 2016 and 2017 start dates indicates that only 5% of agreements include these options.

For pollinator foraging we are interested in support at the shorter distance thresholds, particularly for nesting species such as bees. Walther-Hellwig & Frankl (2003) showed that bumblebee species generally forage within 500 m of their nest and Zerbuchen et al. (2010) found that 50% of solitary bees do not forage at distances further than 300m, although in both studies some bees will travel further to forage. Relatively few of the Facilitation Fund groups are significantly more connected at these smaller scales than in general for agreements within the Facilitation Fund Group Areas, and a significant proportion of the groups are less well connected than expected. This may be a function of the high frequency of options contributing to pollinator foraging resources in CS as a whole. The results would suggest that the level of pollinator conservation activities is reduced by the option choice of agreement holders within the Facilitation Fund groups compared to those agreements outside of groups which may have less specific targeting of options. However, it should be pointed out that the Facilitation Fund groups would still be expected to provide additional pollinator conservation benefits over leaving the land out of an AES agreement.

The options to support granivores in the summer and winter are all based around supply of food resources. As granivore populations are not tied to breeding sites during the majority of the summer and winter, flocks of granivorous birds are able to forage across longer distances to find the food they require. Short distance connectivity may make it easier for these populations to move around the landscape using short hops rather than long single leg journeys, so connectivity at all scales is important. The results show that in the majority of cases connectivity for summer options at shorter scales is poorer than expected in Facilitation Fund groups than for agreements in the wider landscape. However, connectivity for the summer options is considerably better at the longer distances, with almost two thirds of agreements having significantly higher than expected connectivity at the 5000 m scale. Unlike the summer options, with the winter granivore options there is a significant number of groups which do not form into a network at the scales analysed. Where they do form networks, the winter options have a larger proportion of groups showing higher connectivity than expected at shorter distances than for the summer options. On balance the Facilitation Fund may be having a positive effect on conservation for granivores, which could be further improved by targeting connectivity at shorter distances for summer options and incorporating more of the winter options into agreements where they do not currently form a network.

The options for waders are also focussed on providing foraging habitat. This type of foraging habitat is restricted to suitable land use types, leading to a high proportion of zero connectivity scores. As such where these networks exist connectivity at all scales is important to allow waders to find suitable foraging sites if current ones become unsuitable or overcrowded. The effect of the Facilitation Fund groups is broadly positive for summer options (although infrequently significant) but overwhelmingly positive for winter options. The net impact of the Facilitation Fund groups is better connected networks of foraging sites than expected for agreements in the wider landscape, although there is room for improvement for options supporting foraging waders in the summer.

4.4.4.1 *Suggestions for improving coherence*

Overall the Facilitation Fund does produce groups of agreements that are more spatially coherent than random sets of agreements. The following are priorities for improving spatial coherence of options within groups.

1. Options that support pollinators should be actively identified and given a higher priority within the groups to maintain or improve on the level of connectivity for this species group seen in the CS scheme as a whole.
2. Improve the balance of summer and winter options for granivorous and wading birds to ensure resources are available throughout the year.
3. Within holding and cross-agreement option placement should be considered along with the types of option being included in each agreement.

5. SOCIO-ECONOMIC OUTCOMES

5.1 Introduction

This chapter provides an overview of the social outcomes reported in the survey of facilitators and land manager in depth interviews. All facilitators were invited to respond to the survey and as outlined in Section 2.3, from these responses case study areas were selected.

The below sections are an overview of the methods used in the survey of facilitators and land manager interviews. A detailed breakdown of survey findings can be found in Appendix 6 and the interview schedule and land manager interview guide are in Appendix 7. The in-depth interviews with land managers were not transcribed and respondents were given full assurance of confidentiality.

5.2 Methods

5.2.1 Survey of facilitators

A survey of facilitators was undertaken in order to gain an insight into their perspective of group processes and their perceived outcomes and impacts of the group. The survey was based around five themes:

- Information about the group:
 - how well the partnership is working
 - the environmental, socio-economic and wider impacts and resultant behaviour changes associated with facilitation activities.
- Facilitator experience:
 - Process of engaging farmers with the CSFF group
 - Decision-making on how to develop CSFF activities
 - Process of identifying training needs and agreeing actions
 - Facilitator support to land managers with CS applications
 - Maintaining links with other organisations/initiatives (e.g. Catchment Partnerships, NIAs, National Parks, Areas of Outstanding Natural Beauty (AONBs)).
- Group activities and outcomes:
 - how useful the facilitation activities (advice, training and group events) have been in supporting CS applications, selection of agreement options and implementation of successful CS agreements.
- Group achievements:
 - Land management activities to deliver CS and other environmental priorities at landscape scale
 - Socio-economic benefits from the CSFF activities – for members and the wider community.
- Reflections on lessons learnt and further improvements:
 - Barriers, success factors and the mechanisms by which the Facilitation Fund groups had an impact.

The survey was generated on an online survey portal (www.onlinesurveys.ac.uk). The survey link was sent to all 98 facilitators. In total, 67 responses were received from the survey. This represents a response rate of 68%, which is relatively high for a voluntary online survey and may reflect the measures that were undertaken to encourage the response rate. These included sending email reminders to facilitators about the survey and extending the survey deadline to allow for further responses.

The questions allowed for both qualitative and quantitative data to be analysed. The survey was designed to ask indirect questions in order to increase the reliability of the survey. Some responses are likely to be more prone to bias than others, such as the facilitators being asked about their role in the group. However, due to the facilitators' unique insight into their group it was viewed as important to get their input.

For the open questions, responses were analysed using thematic analysis. Word clouds were also used to analyse and visualise the thematic outputs. For some of the open questions, responses were grouped into broader themes/categories and the percentages of responses in each theme/category were presented. However, the percentages that are reported in the qualitative analysis should be treated with caution because they were based on responses to open questions, where no options were given for the facilitators to choose from. As the main focus of qualitative analysis is to explore the breadth and depth of information from the open responses, these percentages should be seen as indicative rather than definitive representation of views.

5.2.2 Land manager interviews

Interviews were carried out with ten group members to include an alternative viewpoint to the facilitator feedback. The research team contacted the facilitator and requested the contact details of ten group members. The project team selected one land manager at random from this list to interview. Resources for this element of the study were limited, therefore it was decided that being able to pick from a list provided by the facilitator was the most efficient solution to reduce bias. Land managers offered a valuable insight and perspective on the group, although they were not able to speak on behalf of the whole group, they offered a viewpoint of the possible effects of the group as a whole. Land manager interviews were used to provide further detail to case studies, and it is important to note that the findings are specifically related to their experience within their group and are not representative across the whole CSFF. However, all interviews were positive and responses noted similar benefits from the facilitation fund, such as increasing their relationships with neighbours. It is likely that the most engaged land managers participated in the interviews due to committing their time to the interview and this bias should be considered when referring to case studies and land manager interviews.

The interview guide was created to ensure that land managers were able to provide an opinion of group priorities and activities. Group members were engaged with interviews and provided detailed responses to questions. The inclusion of interviews has been invaluable in contributing to the narrative of the group and providing a more holistic perspective on the groups' successes.

All ten participants gave consent for their interview to be recorded, notes to be taken, and to be contacted if any clarification was needed. The interviewer made written notes during interviews and listened to recordings multiple times in order to increase the validity of the case studies. The outcomes are based on general feedback from land manager interviews. Interviews took place over the phone for around half an hour and generated qualitative data that was included in the 10 in depth case studies (see section 2.3).

5.3 Results

5.3.1 Survey of facilitators

5.3.1.1 Profile of respondent groups

The majority of the respondent groups of the survey were newly created after the Facilitation Fund was set up and only 12% were pre-existing before the Facilitation Fund (Figure 5-1).

In terms of formation of the groups, the largest proportion (39%) of the respondent groups were formed by organisations (such as charities, local authorities, Non-Governmental Organisations (NGOs) etc.) one fifth were set up by advisers, 15% were set up by farmers and a quarter were set up jointly by organisations, advisers and farmers (Figure 5-2).

In terms of the methods used to bring the group members together, the majority (70%) utilised existing networks, just over a third (34%) used open invitation and a quarter (25%) mentioned the use of mail shots.

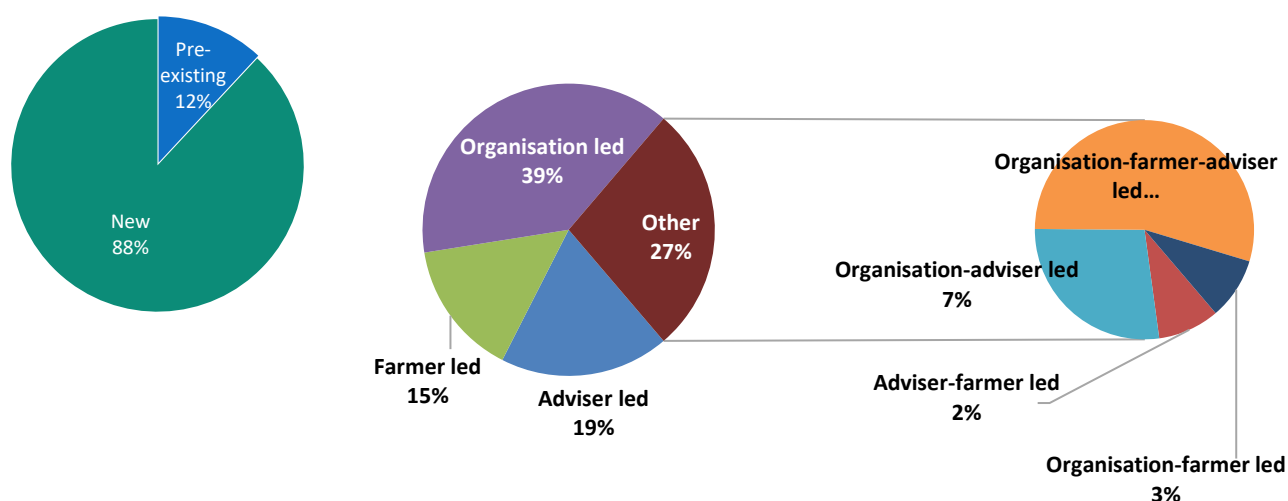


Figure 5-1 Pre-existing and new groups (n=67)

Figure 5-2 How was the group formed (n=67)

5.3.1.2 Experience of facilitators:

The vast majority of respondent group facilitators had involvement in agri-environment schemes and/or other environment initiatives prior to the Facilitation Fund (Figure 5-3). Only 15% of the facilitators surveyed reported that they needed additional training to fulfil the role as a facilitator.

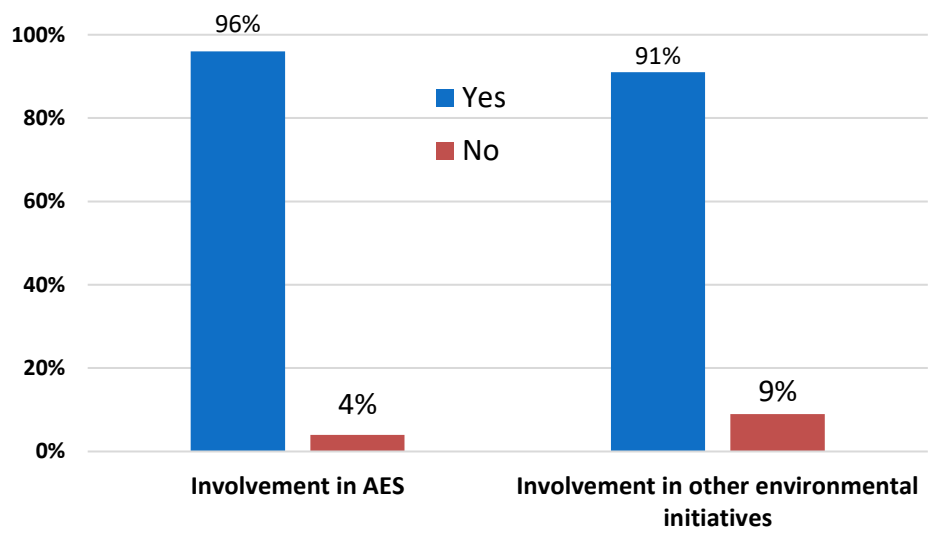


Figure 5-3 Facilitator experience with environmental initiatives (n=67)

5.3.1.3 Group activities

Training activities

Facilitators were asked about the influencing factors in identifying training needs for group members and the vast majority (94%) of survey respondents mentioned the 'views of the whole group'. Other frequently mentioned factors included 'training needs aligned with CS application form (69%)' 'views of the steering group (58%)' and "individual self-assessment by members (40%)". The least frequently mentioned factor was 'funding requirement'.

Survey respondents were also asked to rate the relative importance of the influencing factors that they mentioned. 'Views of the steering group' was rated the highest and 'funding requirements' was rated the lowest influencing factor.

Facilitator Support to Group Members with CS applications

A third of groups reported that most members were helped through the provision of endorsement (Figure 5-4). Most groups reported that they provided support to some members in the following aspects:

- Help to identify priorities
- Help to select options
- Quick point of clarification in CS application process
- Some input to drawing up the application.

The majority (54%) of groups did not provide extensive input into CS applications, 15% reported providing extensive input into CS applications for most members and 31% reported extensive input in CS applications to some of their group members.

The online survey respondents were also asked to provide details on how they helped CS applications. The most common response received from facilitators for this question was that there were more CS applications submitted due to the support that group members received through being part of a group. The support was provided through events organised by the facilitator, such as workshops and external support was also viewed as being influential in increasing CS applications. Organisations, such as Natural England, SAC, Country Land and Business Association (CLA) Royal Society for the Protection of Birds (RSPB) attended group meetings and workshops. There was a reported frustration that facilitators are unable to give 1:1 advice to members but facilitators provided guidance, encouragement and support to group members, which has, in their view, ultimately increased applications to CS and positively influenced the options that members included in their application.

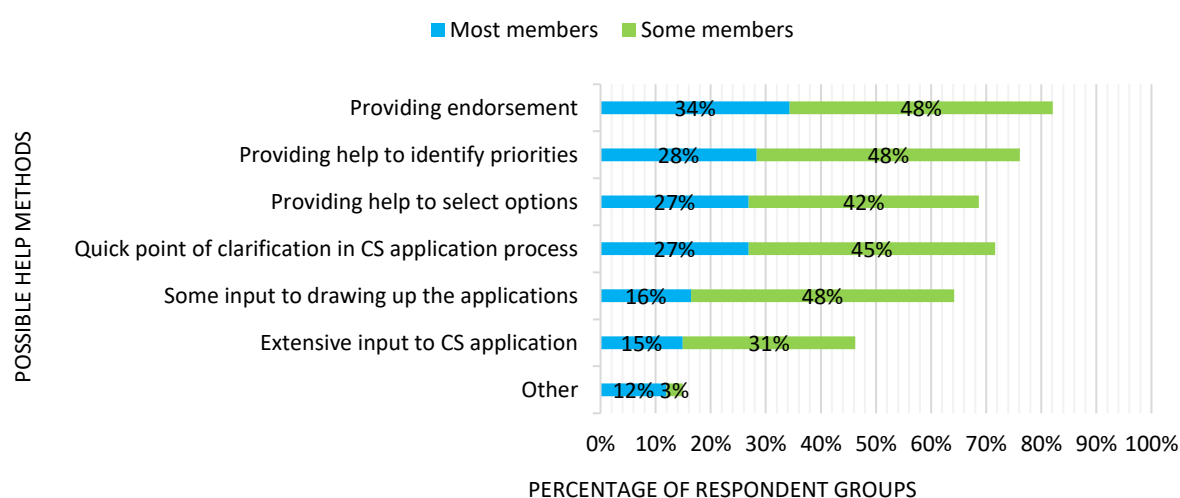


Figure 5-4 Facilitators' support to CS applications (n=67)

Some groups reportedly did not influence the number of group members that were applying to CS. This was reportedly due to the perceived unsuitability of CS in their area, particularly upland areas and one response stated that Brexit has led to a loss of confidence in land managers and they were waiting to find out what agri-environment scheme would replace CS. When discussed negatively, CS was reportedly viewed as overly bureaucratic, lacking flexibility and too prescriptive. Some facilitators reported that members are performing environmental benefits that would be supported by CS but they are not part of the scheme.

Changes in priorities since group formation

The majority (79%) of groups have not had any changes to priorities during the lifetime of their group. Only 14 respondent groups (21%) mentioned that they made some changes to group priorities. Changes in priorities were typically in response to group demand or development of the group and facilitators have described these changes as an 'evolution', 'simplification' and 'refinement'.

Out of the 14 groups who reported a change in group priorities, only three groups stated that the change was a relatively large change:

- One reported that the change was driven by member demand and that members became particularly interested in soil health and management plus issues of rush encroachment
- One group reported that they added pollinators and air quality into group priorities and that air quality was a larger change than pollinators
- Another group reported that the change was driven by the priorities and delivery methods of the proposed Environmental Land Management Scheme (ELMS) funding.

Additional funding

Two thirds (67%) of the respondent groups relied on Facilitation Funding solely to keep their activities going. The remaining 33% (22 out of 67) of the respondents receive additional/external funding towards their activities.

Of the 22 (33% of the 67) respondent groups who received additional funding, 54% (12) had received extra funding of less than £50,000. The numbers of groups with funding halved as the funding went up (less than £50,000 had 12, £50,000-£99,999 had 6, £100,000-£249,999 had 3). No groups received more than £500,000 in extra funding.

Additional funding was received from the public (e.g. local authorities, Environment Agency) private (e.g. water companies) and the third sector (e.g. The Woodland Trust, AONB). Facilitators reported that they have received funding for capital works, 1:1 advice and tree planting, as well as other projects. The funding integration has helped groups to meet their priorities with the suggestion that it has had a positive environmental impact. Three groups that have received the most external funding have mostly received this from multiple sources and two of those groups identified Natural Flood Management as an area that benefited from external funding.

5.3.1.4 Group achievements and impacts

Effectiveness of training event formats

On farm demonstration/ outdoor events were rated as the most effective training format with almost all respondents rating it 'very effective' (Figure 5-5). 'Peer to peer learning' was rated as 'very effective' by 57% respondent groups. Online resources were rated the least effective with 33% of groups reporting that they are 'not effective' and a further 40% reporting as 'not relevant'.

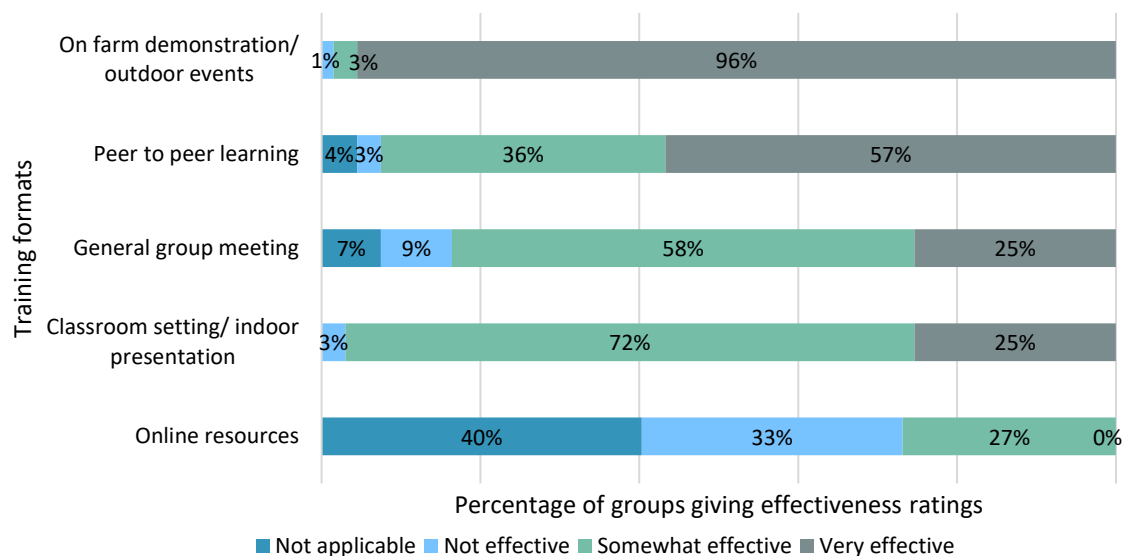


Figure 5-5 Effectiveness of training event formats (n=67)

The analysis of qualitative information suggests that the respondent facilitators believed that demonstrations provide a valuable platform for peer learning of information that is relevant to group members. Facilitators reported that these training events were well attended and they have received positive feedback from members. Many facilitators stated that they often use Farm walks with other training formats, for example, the group will host an indoor workshop session and then it will be followed by a farm walk. Farm walks provided practical, on the ground training to which group members were able to relate to. Additionally, the relaxed informal atmosphere of this training delivery method was cited as integral to its success. There was also a belief that land managers were able to feel comfortable in an outdoor setting and that this had a positive effect on the type of discussions group members had on events that were outside.

Changes and outcomes achieved

Facilitators were asked about the changes that have been made by group members. Most (84%) facilitators reported that group members are more able to assess environmental work that is being done in their area and how they can contribute do it (Figure 5-6). 84% of respondents also stated that land managers had made changes to their farm practice and inputs. The third most common response, by 79% of facilitators was that some land managers had changed their Countryside Stewardship application to include more suitable options. The high percentage of changes reported indicate that the Facilitation Fund groups have contributed to substantial change and that most land managers who are part of a Facilitation Fund group will have made a tangible change.

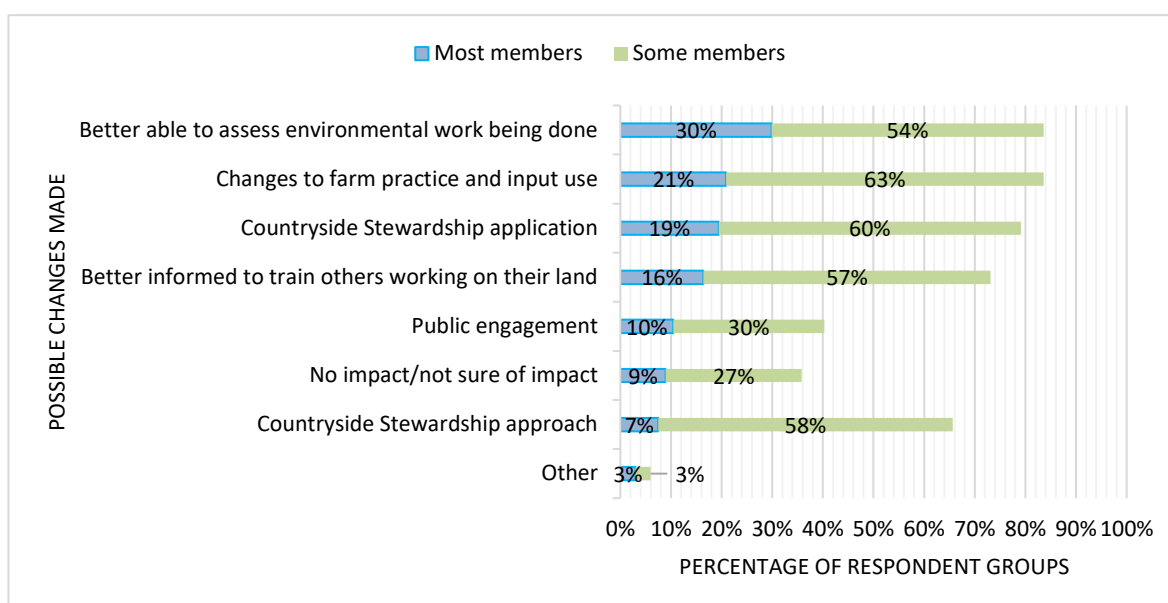


Figure 5-6 Changes made by group members as a result of facilitation (n=67)

Environmental, socio-economic and wider impacts

Over 50% of the respondent facilitators reported that outcomes were achieved in the following areas:

- 'Increased confidence in group members of implementing environmental actions' (57%)
- 'Improving networks' (57%)
- 'Collaboration' (55%)
- 'Management or improvement of priority habitats' (51%)
- 'Management of landscape features' (51%).

The outcomes least likely to have been achieved were 'Reduction in flood risk management' (with 19% stating outcome achieved and 57% stating outcome to be expected) and 'Opportunity for additional or diversified income streams' (with 19% stating outcome achieved and 37% stating outcome to be expected).

The environmental outcomes were more likely to be reported as 'expected outcomes' due to the time lag in achieving these impacts. The most frequently mentioned 'expected outcomes' by over 50% respondents (vertical red line in Figure 5-7) include:

- 'Improved water quality' (73%)
- 'Management or improvement of priority habitats' (72%)
- 'Creation of priority habitats' (58%)
- 'Management of landscape features' (57%)
- 'Reduction in flood risk management' (57%)
- 'Increased confidence amongst group members for implementing environmental actions' (58%)
- Collaboration (54%).

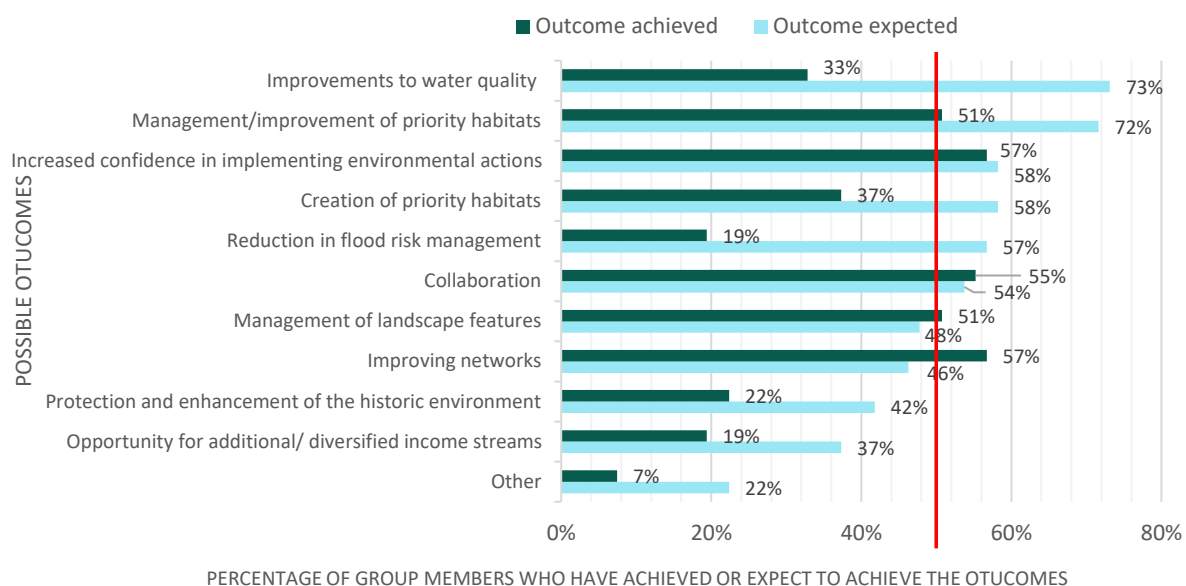


Figure 5-7 Positive outcome achieved or expected (n=67)

Socio-economic and wider impacts

Most outcomes are reported as having a moderate increase, which suggests that overall it is likely that the Facilitation Fund has resulted in positive outcomes, both environmentally and socially. The Facilitation Fund is reported to have motivated a significant/moderate increase in trust between facilitator and members, social interaction, and information and knowledge sharing. Other than the outcomes relating to well-being/physical and mental health, the Facilitation Fund has increased at either a moderate or significant level all of the possible outcomes.

The top four outcomes rated as moderate or significant increase by over 90% of the respondents (orange line in Figure 5-8) were:

- Ability to implement environmental actions (96%)
- Engagement with advice and training (95%)
- Trust between facilitator and members (94%)
- Information and knowledge sharing (94%).

Over 50% of the respondents reported a significant outcome on social interaction and the trust between facilitator and members. The social outcomes of the Facilitation Fund were described in more detail by group members during case study interviews. An early indication is that in areas where there is more isolation the social benefits are likely to be felt greater by the members, who may not usually interact with neighbours or many people.

A decrease in interest/awareness of AES was reported by two facilitators and they stated that perceived CS complexity, late payment and unsuitability of the scheme in relation to their holding, has been responsible for disengaging farmers. However, both respondents indicated an increased awareness and interest in the environment itself, noting that land manager engagement in ELMS is positive.

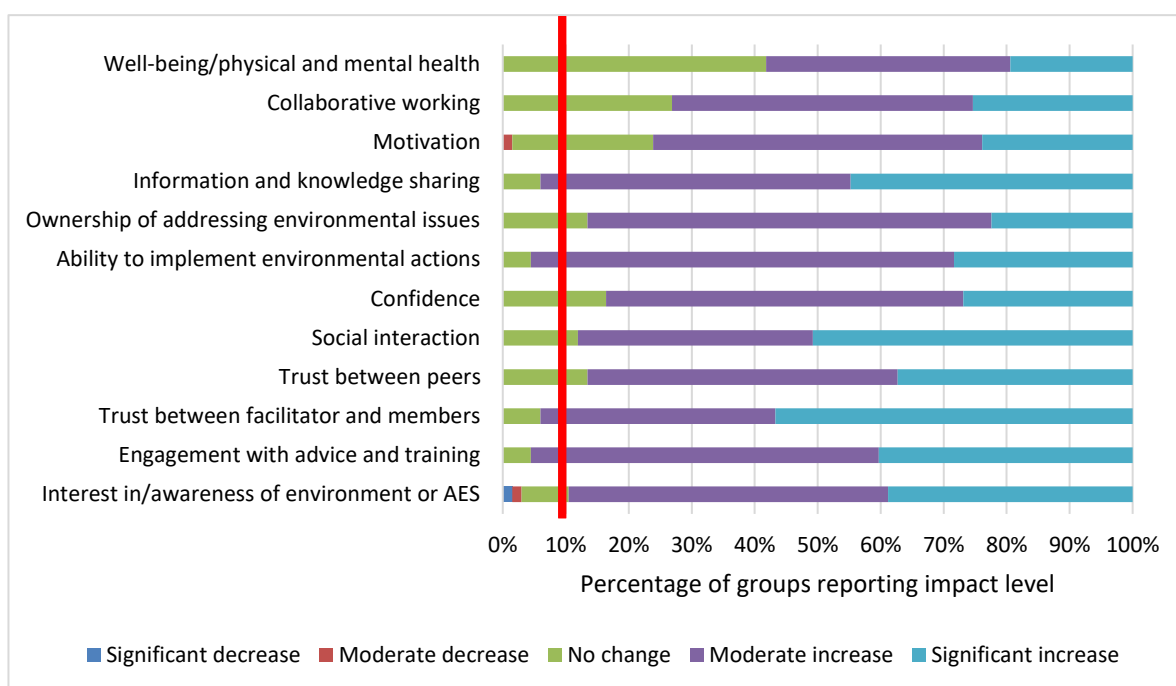


Figure 5-8 Wider impacts of the Facilitation Fund on the group members (n=67)

Survey respondents were asked to list three outcomes delivered by the Facilitation Fund group that would not have been achieved without the funding or if farmers were to take individual rather than collaborative environmental actions. Most responses were focused around group collaboration and the CS Priorities that these were linked to. Social/personal connections, learning and working together towards environmental outcomes were noted as dependent on the existence of the Facilitation Fund. Facilitators reported intangible benefits that have been a result of the existence of the Facilitation Fund groups, such as improved confidence, understanding, knowledge, enthusiasm, social cohesion and the support network that is created when members feel part of a group. Training events allowed for members to share best practice, ideas, farm machinery and to carry out joined up work in the group area, contributing towards the delivery of CS priorities.

5.3.1.5 Success factors, enablers and barriers

Additional funding to CSFF, the role of the facilitator and group training have been rated as the most important enabling factors for achieving group goals (Figure 5-9).

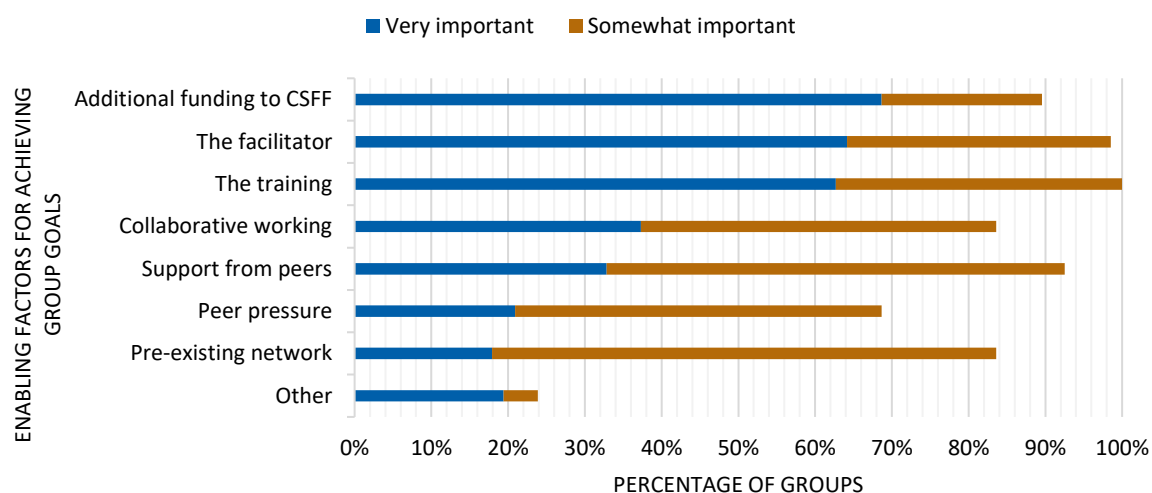


Figure 5-9 The relative importance of the enabling factors for achieving group goals (n=67)

Facilitators reported external funding was important in having a positive influence on group motivation and also helped to promote group activity. Responses that scored external funding very high provided an explanation that complex, ambitious and tangible projects could be undertaken with the support of additional funding to CSFF.

Facilitators described their role as very important to the success of the group. They saw themselves as promoting the bottom up approach of the Facilitation Fund and being key in organising and maintaining the momentum of the group. Facilitators also reported that their attitude is important to the success of the group, by explaining that their drive, passion and enthusiasm was central in establishing the group and ensuring that environmental outcomes are worked towards and remain the focus of group activity. A couple of facilitators noted that trust was key to the success of the group.

Trusted Relationships

Trusted relationships between the group members and the facilitator were identified as important to the overall success of the group. Members typically have input in the strategy and direction of the group but it was common for the facilitator to guide this discussion. For members to agree and work together there is a requirement for them to trust the facilitator and the training that is being delivered. By involving the whole group in decision making the facilitator is helping to build trusted relationships and shared responsibility. For groups that had a significant amount of members decisions were typically taken by the steering group or a few core members and then disseminated more widely. Qualitative responses indicate that members valued the social interaction of the group, discussing and sharing ideas with peers and the facilitator. The approachability of the facilitator could help to build trust, as group members felt able to contact them and ask for guidance, support or reassurance. Trust between members, in the facilitator and with external partners could be viewed as important in Facilitation Fund groups ultimately becoming self-sufficient.

Communication

The communication that groups have with external organisations has reportedly been important in meeting priorities, although a few respondents stated that it was difficult to establish communication with organisations initially. Through the facilitator having relationships with external organisations and other facilitation groups they were able to help build a support network for members, providing access to organisations and other environmental activity in their area. This signposting role was fulfilled because facilitators typically have an overall understanding of activity in the local area.

Facilitators also described their role as providing a single point of contact between members and organisations, where they were able to communicate messages to the members who are 'on the ground' and vice versa. External organisations delivered training to some groups, which helped to ensure that training is of high quality and this has reportedly helped keep group members engaged. By bridging communication between members and organisations the Facilitation Fund has been able to perform actions that can complement other environmental work in their local area and to build trust between organisations and group members.

Collaboration

Collaboration was reported as being one of the most achieved outcomes by facilitators. This was reportedly successful within groups, between groups and with external organisations. Collaboration between group members includes working towards environmental outcomes, such as butterfly monitoring and natural flood management, as well as sharing contractors and ordering wild bird mixes in bulk. Additionally, some groups reported that members were working together on issues that are specific to them outside of the structured CSFF format. This level of collaboration is important in continuing to establish group relationships and the indication that some members are being proactive and working on solutions together is positive.

Collaboration with external organisations has allowed the delivery of specialist training, and the involvement of the facilitator helps to ensure that the group members will find the training relevant and interesting. In some cases, external organisations have provided funding for 1:1 advice and capital works, which is not currently supported by the Facilitation Fund. Most groups have had involvement with external organisations and the level of collaboration has ranged from having meetings, to representatives from organisations sitting on the steering group helping to make decisions about the group strategy and direction.

Confidence

The facilitator's role was reported as important in building a support network for members, which has helped to increase confidence, understanding and knowledge of group members. Some members were able to access support and discuss ideas as a result of being part of a group. Additionally, the trust that members have in the facilitator and the one point of contact that is provided by some facilitators has reportedly helped to provide reassurance to group members and increase confidence in their environmental practices.

5.3.1.6 Suggestions for improvement

Areas for improvement

The most common response was that the facilitators thought that there should be provision for them to deliver 1:1 advice to group members (34%). This percentage should be treated with caution because the question is open, used to elucidate in depth qualitative responses and facilitators were not given options to choose from. It was believed that if this was included in the Facilitation Fund the approach would be able to be more targeted, relationships would become stronger and ultimately environmental outcomes will benefit. One facilitator has sought additional funding through Catchment Sensitive Farming (CSF) and the AONB to enable them to deliver 1:1 advice.

The second most common response (accounting for 22% of total responses) related to the administrative issues that facilitators face. Some facilitators were critical of the administration that they had to complete, stating that it was time consuming and that it could be streamlined. Additionally, some facilitators were critical of the delay in payments and reported that particularly for small consultancies this can be a significant issue. Facilitators that were not from an organisation and were acting as individuals felt that they would benefit from more support from Natural England and that sometimes it can take a long time to receive replies to queries.

Facilitators stated that the scheme would benefit from more flexibility, particularly relating to the funding of capital items. Some members felt limited to what is available under CS and that the environmental impact will be more significant if the group has the flexibility to deliver more than training. Some facilitators also felt that if groups ran for longer more environmental outcomes would be achieved and sustained. A couple of facilitators stated that it would be beneficial if the process of signing up new members was quicker, if family or staff members were able to attend meetings if the original member was unable to attend and to make it simpler for farm staff and organisational staff to attend as members. It was felt by a couple of facilitators that the Facilitation Fund would benefit from more collaboration and cooperation between other groups and statutory agencies and regulators but in previous responses this was largely successful.

Suggestions on further improvement

The most common suggestion for improvement related to the funding of the scheme and particularly that funding should cover 1:1 advice. It is believed that 1:1 advice will help improve member engagement with the group and provide support and improved localised targeting. Further funding responses related to greater flexibility with funding, with members stating that funding for capital works would lead to greater group effectiveness and allow members to see a tangible outcome. Some facilitators believed that there should be an incentive to farmers to become members and that they

should be paid to attend events. Additionally, it was believed that funding is required for longer than five years to enable groups to be more effective and achieve greater environmental outcomes. Some respondents also believed that funding should be provided for monitoring of the scheme in order to measure effectiveness.

Facilitator responses highlighted administrative issues as an area that could be improved, which would lead to greater effectiveness. The delay in payments has led to reputational damage for Natural England and communication has been identified as requiring improvement. The claim process has been highlighted as time consuming and facilitators state that it would be more effective if it was able to be streamlined.

Additionally, facilitators praised the Facilitation Fund model and identified that there was a clear role for its function in meeting social and environmental outcomes.

Continuity of future support

There was a consensus that for environmental outcomes to be sustainable there is a requirement for continued support in some form. This is due to the momentum required to run a group and the funding that is needed to ensure success, delivered through learning and the support of the group. Facilitators stated that members are under time constraints and there was a need for strategic organisation, planning and focus, which is an important aspect of a facilitators job role and it is likely that land managers would not have the time to fulfil this role without funding. Additionally, it was felt that the Facilitation Fund provides good value for money with the training that it delivers to its members.

There was a belief that some elements of the group could be self-sustaining, such as environmental improvements that have already been implemented (e.g. bird boxes) but some elements require consistent engagement, such as continuing ongoing work. One facilitator stated “*without continuous support interest will drop*”. Groups and projects that have not been long term are considered the most vulnerable to losing momentum. Some facilitators believe that due to the engagement with members the projects should be able to be self-sustaining and that is realistic if there is some kind of support role available.

5.3.2 Land manager interviews

5.3.2.1 Environmental outcomes

Land managers typically had an interest in environmentally friendly farming practices. They joined the group to improve the way they currently manage land and to work more collaboratively with their neighbours. The land manager interviewed for CSFF080001 West Cambs 100s Bourn Brook noted that he joined the group “*to find out what [his] neighbours are doing and by getting together [they have] joined up wildlife corridors*”. The collaboration that is enabled by the Facilitation Fund was valued highly by land managers; the land manager interviewed for CSFF100002 Thames Valley Conservation Group stated that by bringing neighbours together “*you can achieve so much more [because] you know what each other is doing*” and the Facilitation Fund has been able to bring “*people together with a common interest who wouldn’t normally meet*”. Overall, land managers were supportive of the Facilitation Fund collaborative ethos and commented that this is beneficial in delivering shared environmental outcomes:

Quotation 1 – CSFF080001 West Cambs 100s Bourn Brook land manager discussing the variety of membership

“In our group we’ve got all sorts of farming, and we’ve been lucky to have huge diversity within the group working towards the same goals”.

Training delivered through the CSFF was also beneficial to land managers and it was felt it had environmental benefits:

Quotation 2 - CSFF070012 Quotation from the Hereford Meadows land manager on the benefits of attending training events

“you always learn something new... something that I can take back and use in my management that I hadn’t thought of”

Quotation 3 – CSFF030011 Swaledale Facilitation Fund land manager discussing the benefits of being part of the group

“it makes you realise that there are improvements that you can make and you only pick these things up by keeping your ear to the ground and absorbing as much information that you can”.

These quotations demonstrate the value that land managers have placed on gaining local environmental knowledge and building local relationships. Training events were also praised for their quality and value:

Quotation 4 – Quotation from the CSFF070012 Hereford Meadows land manager on the content of training events

“we’ve had some excellent identification courses, we have a very good environmentalist and botanist and we get some really good meetings”.

Quotation 5 – CSFF100002 Thames Valley Conservation Group land manager on the content of training events

[training events have been] *“useful to the farm because they’re bringing in speakers who would help us with anything, from filling in our forms to getting ideas from other farms”.*

The last quotation is indicative of the landscape benefits that can be delivered through collaboration and enablement of land managers working together collectively.

Training and peer learning, has enabled group members to learn skills to be able to manage a diversity of areas and the land manager interviewed for CSFF020001 Morecambe Bay Facilitation Group noted that, *“orchards, wetland areas and small streams and rivers”* are being managed by group members.:

Quotation 6 – CSFF020001 Morecambe Bay Facilitation fund land manager on the help that they receive from other group members

“I’ve got people who are at the top of their profession helping me out and I couldn’t ask for better than that”

Quotation 7 - CSFF020001 Morecambe Bay Facilitation Group on the expertise within the group

“there are foresters, there are meadows, there are people involved in butterflies and birds and so forth in the group, who have been doing it for 40 years plus and they are unbelievably free with their information and sharing their knowledge and expertise”.

As a result of attending training sessions, land managers have been made aware of environmental features on their land and the CSFF Swaledale land manager noted that they have *“got more wildflowers than [they] thought”* and as a result they *“are putting [CS] options in for meadow restoration and enhancement”.*

Additionally, training has enabled the land managers from CSFF Hope Valley Farmers to *“consider different things now [they have] been to meetings”.*

Training has helped them enter into CS and in one interview a land manager from CSFF100002 Thames Valley Conservation Group spoke about how she has applied for Higher Tier and she *“certainly wouldn’t have found that information without [the group]”*. A further land manager noted how the group had helped them to understand CS:

Quotation 8 – Quotation from CSFF120003 East Devon Farmers Group land manager on the influence that being in a group has had on their entry into Countryside Stewardship

“we weren’t in any scheme before and now we are... because it wasn’t as difficult as we would have thought and because we went on farm in a practical way and we looked at what it means and how that would look. When you can see it in reality it’s not as onerous as it might seem”.

By committing to CS it is expected that environmental improvements will be delivered, displaying the positive effects being part of the group can have on the environment. Overall, land managers reported feeling more informed on environmentally beneficial land management practices and local issues. They valued the expertise of training delivered through the groups and they reported being open to new methods of managing their land. Land manager interviews offered a wholly positive insight into the impact of the Facilitation Fund groups, but members were likely to be the most engaged because they volunteered to participate in the interviews. It would have been beneficial to interview more land managers, including those less engaged with the scheme.

5.3.2.2 Social capital gains

The social benefits of being a member of a Facilitation Fund group were also important to the land managers interviewed. It has been reported that being a part of a group has enabled members to have, *“the knowledge of how to do things and the confidence to have a go”*.

The confidence of group members has improved over time:

Quotation 9 – CSFF030011 Swaledale land manager on the social benefits of the group

“people are much more relaxed and open in one another’s company”

Quotation 10 – CSFF030011 Swaledale land manager on her improved relationships with farmers in her local area

“[she] feels as though [she] knows everybody and [she’s] comfortable in going into a room with a lot of farmers”.

The building and establishment of relationships has been important in order to improve the confidence of land managers, which is an outcome that requires time to build up. Additionally, the land manager indicates that social benefits have encouraged her to undertake actions that she would not previously have done without the group.

The Facilitation Fund group has been demonstrated as particularly valuable in remote areas:

Quotation 11– CSFF030011 Swaledale land manager on the social benefits of being part of the group

“we are in a remote place and we can go to meetings and see people in other remote places – we depend on these events to bring people together”.

By providing activity in areas where the closest neighbours can be miles away it is useful in helping to decrease isolation. Additionally, in other areas it has been reported that:

Quotation 12 - CSFF080001 West Cambs 100s Bourn Brook land manager on the benefits of peer to peer learning and the increased confidence felt by being part of the group

“prior to the group we were farming and not talking to each other – you’d make a decision and not know whether it’s right or wrong and being a part of the group gives you that boost to know that you’re not out here on your own and you know the way to go”.

As described, the social reassurance that is provided to group members has been beneficial in their decision-making process and the confidence that they have gained was reflected in the facilitator survey. Land managers indicated that they are able to learn from each other and that direction and guidance is provided by the group. The group being able to provide a “boost” is a suggestion that morale has been increased in their local farming community and that is it valuable for members to know that they are part of a community rather than “on their own”.

Land managers reported that group events are able to provide social benefits, particularly peer to peer learning and they are able to strengthen relationships:

Quotation 13 - CSFF100002 Thames Valley Conservation Group land manager on peer to peer learning

“a lot of useful information gets passed around”

Quotation 14 – CSFF120003 East Devon Farmers Group land manager on the social benefits of the group

“we share knowledge and ideas and because you’re in a group on a farm visit you become relaxed and more open because it’s always the same group of people”.

By sharing ideas and learning together, environmental and social benefits can be achieved because land managers are able to share their experience and target their efforts, as illustrated above with collaborative working helping to achieve environmental outcomes. By being able to discuss and share mistakes or success land managers are able to save time and avoid making the same mistake as their neighbours. CSFF050007 Hope Valley Farmers’ land manager interviewed said that events are important because they are able to “bring and keep local farmers together”, suggesting that regular events are important in order to ensure members retain their engagement and relationships.

The bottom up approach of the Facilitation Fund has reportedly had a social benefit to group members:

Quotation 15 – CSFF130001 Selborne Landscape Partnership land manager on the benefits of the Facilitation Fund’s farmer led approach

“farmer led and bottom up approach where you’re engaging the farmer right from the word go, the farmers are out there every day, they know what’s on their farms [by enabling the] collaboration and getting a lot of farmers coming to meetings we’re learning from each other”

Quotation 16 – CSFF130001 Selborne Landscape Partnership land manager’s viewpoint of the farmer led approach of the Facilitation Fund.

“farmer led is really key because it’s about having the feeling that we are in control of our own destiny”.

The facilitator has been praised by land managers and they have been described as:

Quotation 17 – CSFF130001 Selborne Landscape Partnership land manager on their trust of the facilitator

“somebody who we knew and trusted and who approached things from a farming angle and understood the farming realities as well as the conservation angle”.

The trust and relationship that land managers have been able to establish with facilitators provides social benefits, because they are likely to act on advice provided from a trusted source. Additionally, the existing role that facilitators have played in the local farming community is valuable and the land manager interviewed for CSFF CSFF050007 Hope Valley Farmers reported that the facilitator was able to *“keep everybody interested”*. A land manager that was interviewed for CSFF080001 West Cambs 100 Bourn Brook discussed the role of the facilitator and stated that their group was *“really forward thinking and most of that has been down to the facilitator”*.

5.3.2.3 Wider impacts

Wider impacts are typically been reported as those effects that groups have had on members of the local community. Facilitation Fund groups have helped to *“raise awareness in the county”* of the priorities of the group. Additionally, by communicating with the public it was reported that a land manager had the opportunity to:

Quotation 18 – CSFF Selborne Landscape Partnership land manager on how the group has helped to increase the understanding that the wider community have of the farming community

“explain to people that the farming community want them to stay walking on the footpaths but we don’t want them wandering off in areas that we are conserving for nature and trying to encourage ground nesting birds”.

Engaging with the public was a valuable outcome for Selborne Landscape Partnership because it helps to maintain and build an understanding with members of the public, by educating them on the environmental priorities that the group are trying to work towards. It is more effective to take time to speak to the public and build a relationship than restricting their access to fields. It was reported that speaking to the public was *“hugely beneficial”* for Selborne Landscape Partnership and the event was a *“real two-way discussion and [the public] were very interested to hear what we were doing”*.

5.4 Discussion/Conclusions

Overall the social impacts of the Facilitation Fund have been overwhelmingly positive in the survey and land manager interviews. However, limitations could be that the facilitators were likely to be engaged and happy with the scheme overall because they spent their time completing the survey. Land managers also volunteered to participate in interviews and the list of potential interviewees was chosen by facilitators, which could result in further bias. The high response rate of 67% of facilitators for the facilitator survey is likely to reduce bias and questions were designed with consideration of this potential bias.

Results provided by the facilitators indicated that the Facilitation Fund has allowed for increased social coherence, both within the group and to a lesser extent the wider community. Facilitators and land managers both praised the way that the Facilitation Fund provided a platform for land managers to work together towards local environmental outcomes. Facilitators in particular viewed the landscape scale elements as a key component to the overall success of Facilitation Fund groups. It was commonly reported that group members were familiar with their neighbours, but the Facilitation Fund has helped to strengthen these relationships. Facilitators were typically very well connected in their local area and many groups were supported by non-governmental organisations or additional people to

help with the running of the group. Farmers that have a high level of social capital⁸ have been found to make the greatest efforts to manage land sustainably (Hall and Pretty, 2008).

The Facilitation Fund has likely had a positive impact on group cohesion, promoting and maintaining friendships between neighbours. Due to the strength of relationships reported both by facilitators and land managers it is also likely that joined up landscape benefits have been achieved. This is due to the collaborative working that has been promoted by the Facilitation Fund and the awareness of local environmental objectives.

⁸ Social capital was measured determined using a tailored version of the World Bank Social Capital Assessment Tool, and five indicators were used, i) the extent of farmers' proactive communication with government agencies, ii) the ability to access any form of government, iii) the feelings of political empowerment regarding agricultural and rural policies, iv) evidence of political engagement to influence policies and the use of the internet to access information (Hall and Pretty, 2008).

6. EVALUATION - KEY FINDINGS

Here we summarise the findings from this study in the context of the Evaluation Framework indicators. Further detail of the analyses can be found in previous chapters and associated outputs.

6.1 Uptake and coverage (input and output indicators)

6.1.1 AES Uptake (output compared to baseline)

Knowledge of the CSFF group membership profile with respect to agri-environment scheme (AES) membership is helpful to understand the context of group membership in terms of the scope to deliver new management under AES agreements. Membership with a high proportion of AES in place prior to the group formation will have limited scope to coordinate environmentally beneficial AES activity compared to groups where few AES were present at group formation and therefore the facilitator had the opportunity to influence AES uptake in new agreements. Information on AES agreement data provided by facilitators was assessed against the following categories:

1. No AES (current or expired)
2. CS pre-dates group formation; no ES
3. CS after group formation; no ES
4. ES current; no CS
5. ES current; CS pre-dates group formation
6. ES current; CS after group formation
7. ES expired; no CS
8. ES expired; CS pre-dates group formation
9. ES expired; CS after group formation
10. CS awaiting approval
11. Non-funding members

These data are summarised below. Full details are in the accompanying excel file 'Group breakdown by AES category'.

On average, 31% of group members were not currently in an AES, although in 14 groups over half the members had no current AES (Table 6-1). A higher proportion of agreements (40%) were in place prior to the formation of the group compared to agreements with start dates after group formation and therefore developed as part of the Facilitation Fund activity (29%). However it must be noted that the period of time associated with group formation means that CS agreements put in place before the group was officially formed were not able to be influenced by the group. Pre-existing AES agreements accounted for two thirds of members in 11 groups and one was made up of members exclusively with existing agreements, however this group consisted of only five members. In nine groups more than half of the members had entered CS after the group formed. Six groups had no CS agreements developed in response to the group, but these were all small (11 or fewer members).

Table 6-1 Summary of group AES uptake

	% of group members		
	Mean	Min	Max
No current AES	31	0	61
AES pre-dates group formation	40	7	100
CS in place after group formation	29	0	82

The uptake of AES amongst group members, although high, was perhaps lower than might have been expected, however this may be due to the complexity of CS which has discouraged some from entering the scheme. The presence of existing agreements will be a focus for developing group priorities, but is likely to limit the landscape-scale implementation of AES activity. Although there is scope to adjust existing agreements to better deliver group objectives, feedback from participants suggests that this rarely occurred because of the bureaucracy associated with agreement modification.

6.1.2 CSFF funding (input indicator)

Funding per group member averaged £3,763 over the life of the agreement and was similar across all tranches of the CSFF (Table 6-2). However there was considerable variability in funding levels and Figure 6-1 indicates that funding per member tended to be greater for smaller groups (c. <15-20 members). This suggests that larger groups are more cost effective, however outcomes relating to agreement-level activity may be better for smaller groups. For example feedback from the facilitator survey indicated that training was considered more effective when engaging smaller groups.

Table 6-2 Funding (£) per member*

Group start year	Mean	Min	Max
2015	4,028	2,628	7,114
2016	4,321	2,177	12,800
2017	3,235	1,557	8,100
2018	3,318	1,560	8,125
Total	3,763		

*Based on current (Feb 2019) membership and updated total funding value

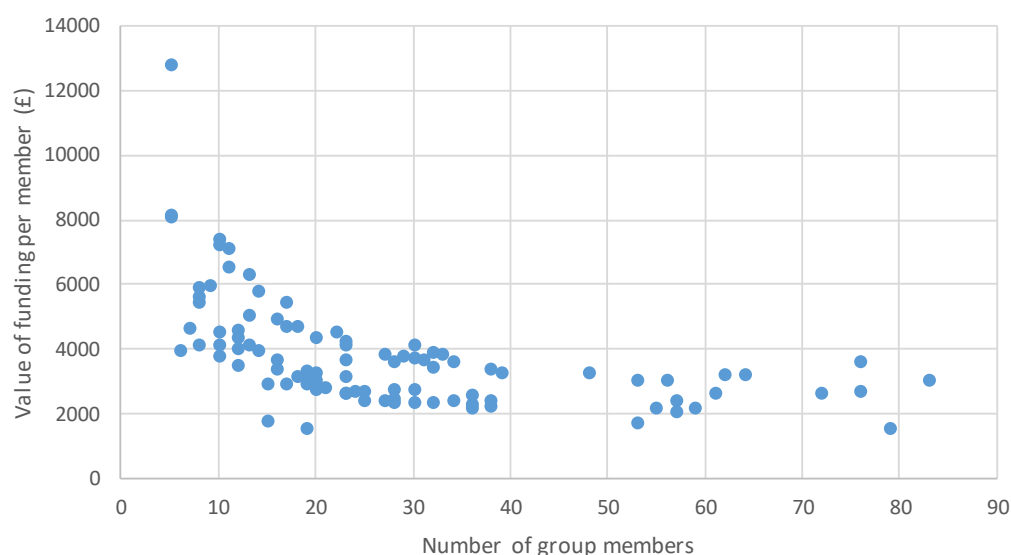


Figure 6-1 Level of funding per group member (as of February 2019)

6.1.3 Change in membership (output indicator)

Group size gives an indication of the potential of a group and increase in membership over time can demonstrate positive impact of facilitation activity. Mean group size at formation was 19 (similar across facilitation tranches) and by February 2019 had increased to 27 (Table 6-3). Groups which had been in the CSFF longest were associated with greater mean increase in membership, but this effect

may have been influenced by a small number of groups which increased their membership very significantly.

Table 6-3 Mean membership at group formation and current*

Group start year	No. of members at group formation	Current members
2015	20	32
2016	19	31
2017	16	25
2018	19	22
Total	19	27

*February 2019

Of the 23 groups which did not increase in size between group formation and February 2019 (Figure 6-2) most (15) were formed for the latest application round (2018). Only 11 groups increased by more than 20 members. Generally, greatest increases were associated with groups with small membership at formation and smallest increases with groups which started with very large membership, but there was considerable variability (Figure 6-3). Most groups did not exceed 40 members which is probably associated with the CSFF model and its aims to develop collaboration; larger groups will likely lose the ability to foster relationships between members.

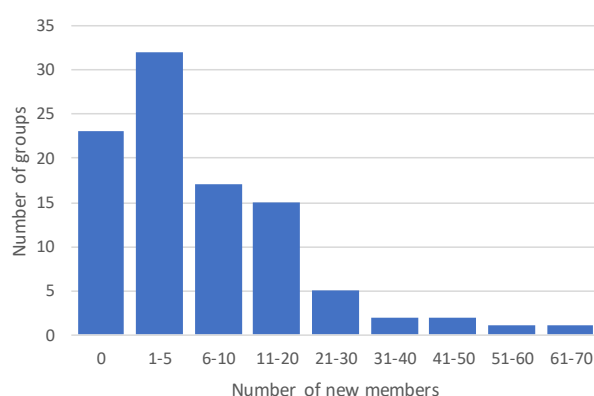


Figure 6-2 Increase in group membership between group formation and February 2019

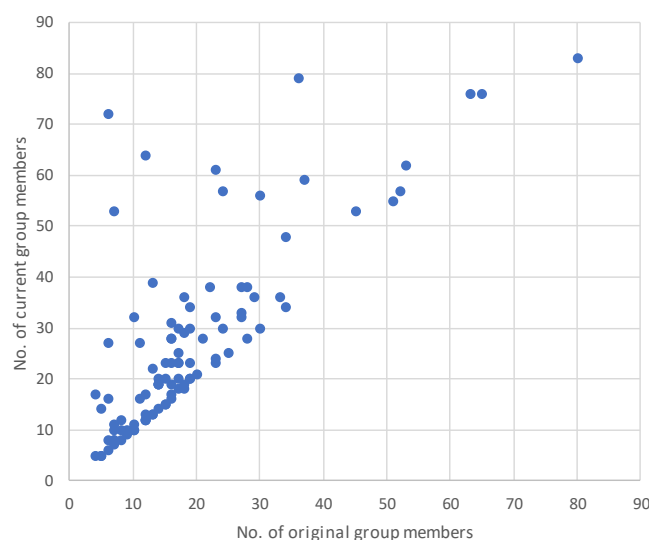


Figure 6-3 Increase in group membership relative to size at group formation

6.1.4 Option uptake (output indicator)

Options which were most frequently included in AES agreements associated with the CSFF (Figure 6-4) were broadly similar to those most commonly implemented across CS as a whole in the first two years of the scheme (Jones et al., 2018). The proportion of agreements with all the common options was higher in the CSFF group compared to the CS population, but this difference may simply reflect the focus of CSFF agreements on multi-annual agreements, whereas the CS population included a large number of capital only agreements where only a subset of options are available.

Options which were relatively more common in CSFF agreements compared to the CS population tended to be options available only in Higher Tier (HT) (e.g. GS6, GS7, GS13, HS5 and WD2). Options relatively more common in the CS population as a whole were more likely to be capital items, particularly those associated with water quality (e.g. RP15, RP28, LV7) and hedgerow management (BN6, BN7) which were not universally available under ES. Therefore, although there is a suggestion that facilitation is promoting uptake of more challenging options, the different characteristics of the CSFF and CS populations mean that it is difficult to draw conclusions.

Full AES uptake data for CSFF groups detailing number of agreements and quantity of options is available in the supplementary spreadsheet 'CS & ES summary of option uptake to append'.

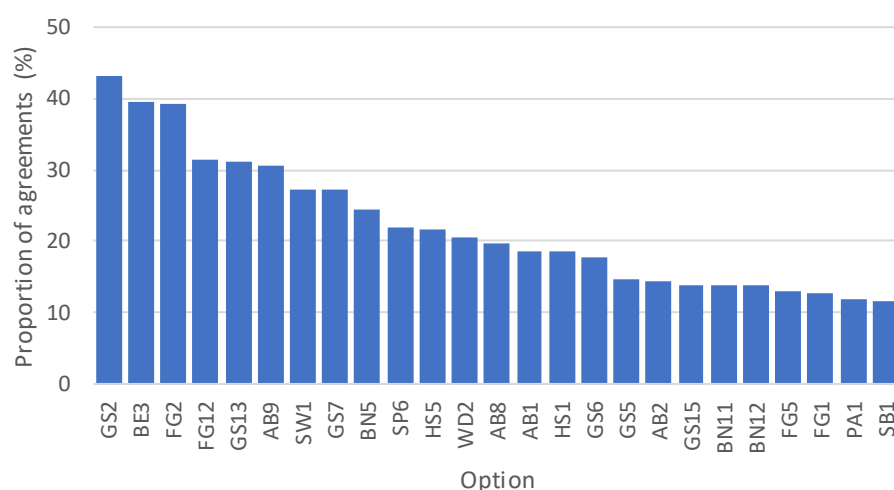


Figure 6-4 Proportion of CSFF AES agreements which include the most common options

A high level comparison of agreement level uptake in and out of CSFF groups, within the core NCAs associated with each group, indicated that option richness and option diversity were significantly greater in facilitated agreements (Table 6-4). This suggests that facilitated agreements were more complex than those which had not received advice through this route, but it is not possible to directly attribute drivers for these differences. Since a large proportion of AES were already in place at group formation, these differences may reflect a predisposition of more environmentally engaged land managers to wish to participate in the Facilitation Fund. Mean agreement value was not significantly different between agreements within and outside the CSFF. The tendency for CS Facilitation Fund agreements to have increased option richness and diversity but the same agreement value indicates that the agreement holders inside and outside of the groups behave similarly with respect to the operational aspects of the scheme, but the agreement holders within the groups may be willing to put more weight on the ecological and environmental benefits that come with richer and more diverse agreements in considering the trade-off with potentially increased operational costs from having a more complex agreement.

Table 6-4 Agreement level AES option uptake and value in and out of CSFF

	Richness		Diversity		Value	
	In CSFF	Outside CSFF	In CSFF	Outside CSFF	In CSFF	Outside CSFF
Minimum	5.78	5.00	1.14	1.08	17560	29529
Mean	10.27	7.67	1.67	1.42	77034	68520
Median	10.04	7.58	1.66	1.43	63584	63219
Maximum	18.00	9.84	2.31	1.68	161988	207693

6.1.5 Group priorities (input and output indicators)

Assessment of group priorities provides context against which activity can be evaluated. Information contained in group facilitation plans was collated to summarise which environmental objectives were priorities and how frequently specific outcomes were defined by each group.

Biodiversity was a priority for all groups and most also included water and woodland (Table 6-5) with fewest groups focussing on the historic environment. Almost all groups with a stated priority, also specified outcomes which provides focus and goals against which the groups can be assessed.

Table 6-5 Group priorities derived from facilitation plans (n=95)

	Stated priority (%)	Outcomes specified (% yes)	
	Yes	Primary	Secondary
Biodiversity	100	99	69
Woodland	74	72	
Water	91	92	56
Historic environment	36	31	
Landscape	58	54	

6.2 Activities and support (input and output indicators)

Facilitator expertise is critical to the quality of support delivered to land managers. Information collated from group documentation indicates that most facilitators had considerable experience in the high level elements of the role, namely facilitation itself and management relevant to AES (Table 6-6). Facilitators demonstrated less expertise in specific environmental objectives, but not all environmental objectives are priorities for all groups. The proportion of facilitators with at least some experience of each objective broadly matched the proportion of groups with those objectives as stated priorities (Table 6-5) except for water management, where 18% of facilitators had no relevant experience, whereas 92% of groups had specific outcomes around water management. However, there is scope for complementary input from other organisations.

Table 6-6 Level of experience/expertise of facilitators*

	n	Expertise (% of facilitators)		
		Considerable	Some	None
Facilitation	92	83	17	0
Management relevant to AES	93	87	13	0
Ecology	94	57	40	2
Forestry	90	26	47	28
Water management	90	40	42	18

*Information derived from group documentation

In terms of the training events, field trips, indoor workshops/talks and general groups meetings were the most common types/formats of events.

Table 6-7 Type of training events*

	n	% of all groups	Max. no. of events	Average no. of events
No. of field trips	62	63%	71	5
No. indoor workshop/talks	64	65%	21	4
No. of general group meeting	63	64%	37	3
No. networking events	4	4%	1	0.04
No. of other types of events	28	29%	7	1

6.3 Outcomes and impacts

6.3.1 Environmental outcomes (outcome/impact indicators)

The work contributing to this element of the evaluation was a desk-based assessment of AES uptake within and outside the Facilitation Fund. Indicators are used to assess the potential results and impacts relating to the alignment of options with CS targeting and potential landscape scale impacts. This analysis is supplemented by evidence from the facilitator and land manager surveys. However, it was beyond the scope of this study to assess actual environmental outcomes and the prevalence of AES agreements in place prior to the formation of the group, means that the facilitators' scope of influence was limited to a subset of agreements developed at or after group formation. In addition, it was not possible to assess impacts associated with activity outside AES implementation, but feedback from facilitators clearly indicated that significant environmental management was delivered outside AES, for a variety of reasons including ineligibility of habitats for AES, reluctance to enter into an AES agreement and management in excess of agreement requirements.

Alignment of AES activity with local environmental priorities gives an indication of the impact of facilitation on likely environmental outcomes. Analysis of option uptake in CSFF groups highlighted a total of 59 CS target objectives across Priority Habitats (PH) resource protection (RP) issues, historic environment (HE) landscape features, designated sites (DS) target species, surface water management (SW) and woodland creation (WC).

There were 15 target objectives which were addressed by AES uptake in all groups where the target coincided with agreement land. Most of these were common targets which were present in >85% of groups and included target objectives across PH, RP, HE and landscape objectives.

Alignment of option uptake with targets which occurred less frequently in group AES land was variable. For example, calaminarian grassland PH was present in only 10 CSFF groups, but 90% had implemented options relevant to this habitat. Whereas coastal sand dune PH was present in 22 groups, but only 5% of these had options relevant to this habitat. Option uptake relevant to targets was lowest (<50%) for a range of common and uncommon objectives predominantly relating to landscape and priority habitats. Group objectives cannot encompass all environmental issues associated with the land, but could provide a vehicle for addressing targets which are limited in extent and therefore are particularly important to protect and priorities which may be less familiar for AES applicants.

Alignment of options which mitigate **water quality issues and flood risk** were further investigated through mapping of risk scores across catchments and overlaying relevant options. The outputs vary, but demonstrate some positive alignment of AES options with areas of higher risk for water quality and flooding.

Connectivity of AES options to meet resource requirements for a range of species/resource groups indicated that CSFF group activity has had a positive impact on connectivity of resource for almost all group/scales analysed (Figure 6-5) despite the fact that group objectives to not address all the resource categories considered here. Although there was variability between individual group outcomes and the scales analysed do not all have functional relevance to all species groups, these results indicate a positive contribution to better connectivity and thus more resilient landscapes.

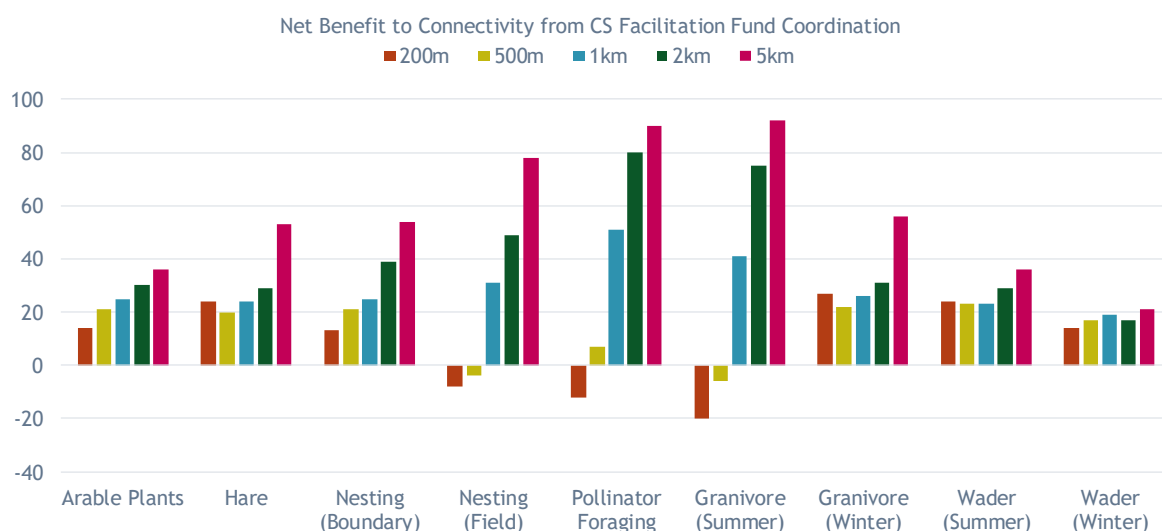


Figure 6-5 Difference in connectivity for AES activity within CSFF groups compared to the wider landscape

Facilitators views on the groups' progress towards meeting the various environmental objectives set out in the original Facilitation Plan, give an indication of likely environmental outcomes (Figure 6-6). However, these data must be considered in the context of the facilitators' perspective, which may be more positive than an independent viewpoint. For each environmental issue, two thirds of facilitators thought that group plan objectives had at least been partially achieved. Only a small number thought any objectives had been fully achieved. However, responses represent views on both implementation of management activity (inputs) and environmental outcomes (results/impacts). Lowest confidence was associated with woodland objectives, but responses included concerns over both an insufficient area planted and the fact that it was too early to assess success. Biodiversity objectives were most likely to have been at least partially met. Although results take many years to deliver, implementation

of activity is viewed as a positive input indicator. In addition, greater confidence of land managers both in understanding of environmental value of habitats/features and in their ability to deliver appropriate management, was reported by facilitators and land managers alike.

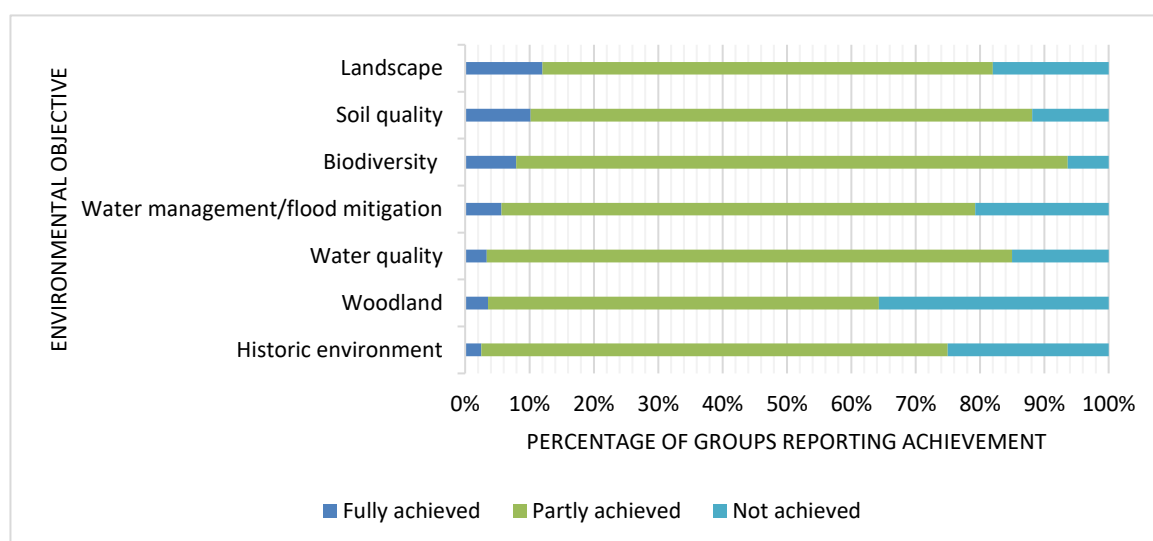


Figure 6-6 Facilitators' perspectives on achievement of objectives (n=67)

6.3.2 Social capital gains (outcome/impact indicators)

Social capital gains from CSFF group activities relate to increase in land manager awareness, attitudes and capacity to carry out environmental land management activities as a result of CSFF. This is measured by the result indicator 'changes in awareness, attitudes and capacity'. Evidence of changes in knowledge, skills, and attitudes to the environmental activities and collaboration related to this indicator was collected mainly through the online survey of facilitators and interviews with land managers in the case studies.

In the online survey of facilitators, respondents were asked to what extent the intended outcomes have been achieved. Over 50% of the respondent facilitators reported that the outcomes have been achieved in relation to the following social indicators:

- 'Increased confidence in group members of implementing environmental actions' (57%)
- 'Improving networks' (57%)
- 'Collaboration' (55%).

In addition, the facilitators most commonly identified their main role (that is related to social capital gains) as collaboration, communication and co-ordination; and confidence building.

Facilitators have stated that their collaborative role is essential in building a local network, which consists of group members, public and private organisations (e.g. water companies or wildlife groups) whilst also helping to meet environmental objectives with a local focus. A further collaborative benefit which has been reported is that the facilitator typically also has an overview of the local environmental issues and provides a role that enables and promotes joined up working and thinking. Communication is central to the facilitator's role and they reported that they provide a single 'point of contact', whereby they signpost group members to relevant funding sources, advice or schemes. It has also been reported that facilitators, due to their work 'on the ground', are able to maintain contact and open lines of communication between group members and organisations (e.g. NE, Wildlife Trust etc).

The facilitation role has also been reported as important in providing support and guidance. This leads to increased confidence of members. By facilitating events, driving projects forward and leading

delivery, group members were able to partake in working towards environmental outcomes that would not be achieved without the Facilitation Fund.

The word cloud below provides an overview of facilitators' responses to question of 'how and why the facilitation role is important'.



The most common response from facilitators with respect to their role in the group was to provide focus. This is important in ensuring that the group have clearly defined objectives which they can collectively work towards. According to facilitators, their role reportedly, “brings people together, brings focus to the group, enables networks to be built and greater connections with relevant organisations and people” and collaboration is also enabled by “using local knowledge, contacts and industry experience to create worthwhile training with respected speakers”. Additionally, facilitators are able to:

“provide a point of contact”

“pass on all updates and important information as it is released [which] provides the farmer with just one contact where he/she can keep up to date and over the course of the project trust is built up between members and facilitator, which can lead to more changes to management on the ground”.

This suggests that facilitators have a broad overarching role that is able to provide social benefits to group members. Strategic and practical functions provided by facilitators were also reported as being important elements that would not be self-sustaining, such as organising events and providing overall direction to groups. Facilitators often have a good understanding of local issues, which has been reportedly helpful in building trust:

“the facilitator role has been vital because it means [group members] have someone local, who lives and works in the area and understands the issues they face to help them to make a difference on their farms. The events help to encourage activity and trust and without a facilitator they would not happen”.

This suggests that familiarity with local people and area is beneficial to the management of groups.

6.3.3 Wider impacts (outcome/impact indicators)

Socio-economic and wider impacts of CSFF activities in facilitated areas relate to the impacts on well-being, collaborative working, motivation, information sharing, awareness, ownership, ability and confidence of addressing environmental issues, social interaction, trust, etc.. Evidence of these impacts was mainly collected through the online survey of facilitators and case studies.

Results from the online survey of facilitators suggest that the Facilitation Fund has had a relatively positive impact on a wide range of socio-economic indicators. The Facilitation Fund is reported to have motivated a significant/moderate increase in trust between facilitator and members, social interaction, and information and knowledge sharing. Other than the impact on well-being/physical and mental health the Facilitation Fund has increased at either a moderate or significant level all of the possible impacts.

The top four impacts rated as moderate or significant increase by over 90% of the respondents (orange line in Figure 6-7) include:

- Ability to implement environmental actions (96%)
- Engagement with advice and training (95%)
- Trust between facilitator and members (94%)
- Information and knowledge sharing (94%).

Over 50% of the respondents reported a significant impact on social interaction and the trust between facilitator and members.

These results suggest that overall the Facilitation Fund should facilitate a better engaged, more collaborative farming community that is more environmentally aware.

A decrease in interest/awareness of AES was reported by two facilitators and they stated that perceived CS complexity, late payment and unsuitability has been responsible for disengaging farmers. However, both respondents indicated an increased awareness and interest in the environment itself, noting that farmer engagement in ELMS is positive.

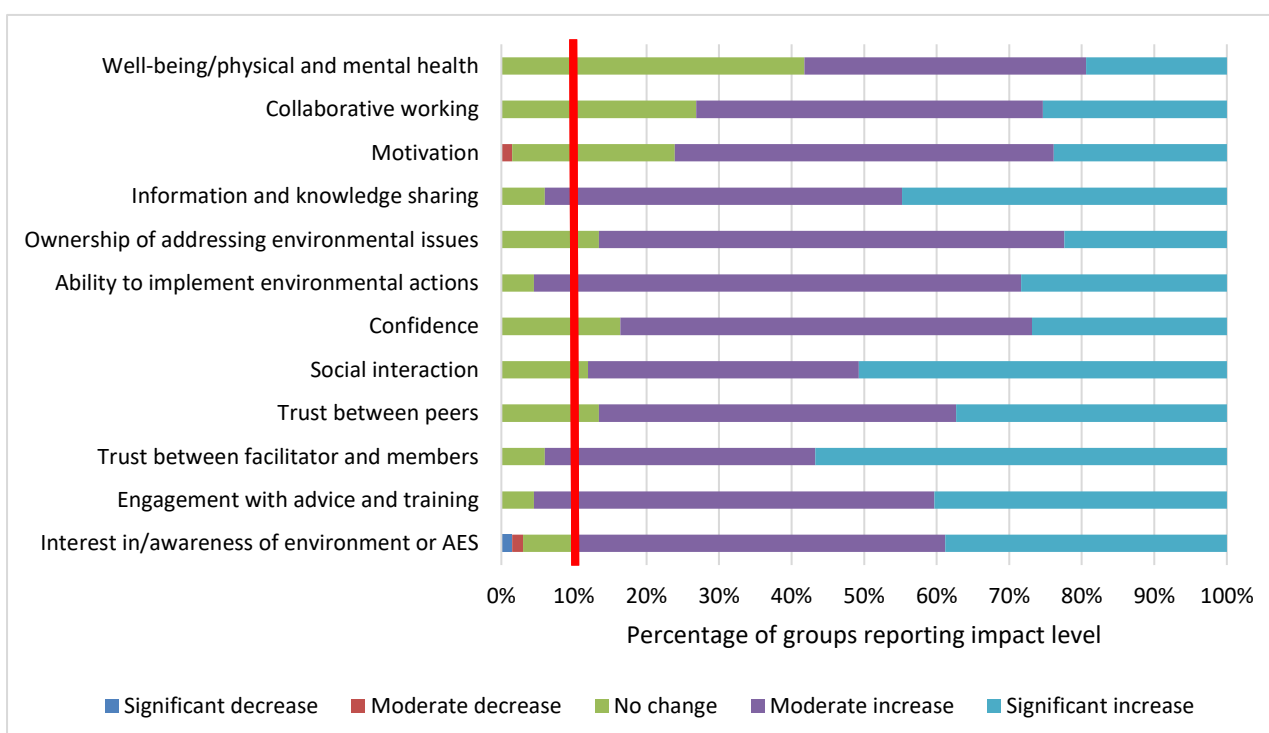


Figure 6-7 Wider impacts of the Facilitation Fund on the group members (n=67)

Survey respondents were asked to list three outcomes delivered by the Facilitation Fund group that would not have been achieved without the funding or if farmers were to take individual rather than collaborative environmental actions. The majority of responses were focused around group collaboration and the CS Priorities that these were linked to. Social/personal connections, learning and working together towards environmental outcomes have been noted as dependent on the existence of the Facilitation Fund. Facilitators reported intangible benefits that have been a result of the existence of the Facilitation Fund groups, such as improved confidence, understanding, knowledge, enthusiasm, social cohesion and the support network that is created when members feel part of a group. This has allowed for members to share best practice, ideas, farm machinery and to carry out joined up work in the group area, contributing towards the fulfilment of CS priorities.

6.4 Conclusions and recommendations

6.4.1 CSFF uptake and activity

Uptake of CSFF is ongoing and this analysis has relied on a limited set of early data. This was available for 98 groups established between 2015 and 2017, with more detailed analysis of documentation undertaken for a subset of 12 groups. As such, it is too early to assess the scale of demand or the make-up of groups; whilst some groups are quite small, many have stated an aim to increase membership over their first year and it would be useful to monitor this as the programme progresses, as it will also affect impact. An early review of the activities funded under CSFF highlights some well-targeted events and encouraging reports but it is too early to draw robust conclusions. It is recommended that all group reporting follows a more consistent format, with key metrics reported in tabular format to allow data to be readily collated and compared across groups.

As with uptake, it is still too early to draw conclusions on the potential impact of CSFF activities. This is mostly due to the limited time the scheme has been in operation and the fact that most CS agreements relate to ES rather than CS. While group documents set out aims and objectives, there are challenges for analysis of alignment of CS option uptake in a meaningful way. This also in part reflects wider data issues, which include defining the boundaries of CSFF areas and dealing with multiple group objectives.

There is an interest in the wider value of CSFF, beyond supporting uptake of CS agreements which are well-aligned to local priorities. This relates to the potential social and economic benefits of collaborative engagement and links to wider initiatives through partnership working. The group documentation highlights a number of activities across groups which should deliver on this but actual data are limited and more work is necessary to consider how best to capture such impacts in a robust way.

Overall, this study has been valuable in highlighting a number of data capture issues as well as potential methods to address them in monitoring and evaluation.

6.4.2 Facilitation value for CS uptake

Option richness, diversity and agreement value were used to compare AES agreements within CSFF groups to those in the same National Character Areas (NCAs) that had received no input from the CSFF.

A high level comparison of agreement level option uptake in and out of CSFF groups, indicated that option richness and option diversity were significantly greater in facilitated agreements. This suggests that facilitated agreements were more complex than those which had not received advice through this route, but it is not possible to directly attribute drivers for these differences. Since a large proportion of AES were already in place at group formation, these differences may reflect a predisposition of more environmentally engaged land managers to wish to participate in the

Facilitation Fund. Mean agreement value was not significantly different between agreements within and outside the CSFF.

6.4.3 Alignment of AES option uptake with CS priorities

The alignment of AES activity with local environmental priorities gives an indication of the impact of facilitation on likely environmental outcomes.

Option uptake under ES and CS schemes within CSFF groups was assessed against identified targets in the relevant NCAs to identify the number of options addressing each priority and identifying which priorities were not covered within group agreements. In areas where resource protection and historic environment priorities were present, these were almost always addressed by the groups' AES uptake against at least one area/feature. Biodiversity priorities were less consistently addressed. Uptake of relevant options where hedgerows and grasslands are a priority was high, although these are covered by options that are commonly included across all agreements and therefore require little modification of agreements to address. Uptake of options relating to a range of Priority Habitats (PH) was less well targeted, but may, in part, relate to the limitations of using targeting priorities at the NCA level, which cannot be resolved in a desk study using the currently available data.

Analysis of option uptake in CSFF groups highlighted a total of 59 CS target objectives across Priority Habitats, resource protection issues, historic environment, landscape features, designated sites, target species, surface water management, and woodland creation. There were 15 target objectives which were addressed by AES uptake in all groups where the target coincided with agreement land, and another 14 objectives where more than 75% of the groups addressed the target at one or more locations. This is a high level analysis of targeting which cannot account for whether the specific features or habitats are present on the land under agreement within the Facilitation Fund groups. It could however be used to identify potential missed priorities that the Facilitation Fund groups could look to address in new agreements.

6.4.4 Spatial coherence of options for biodiversity

Subsets of options which have the potential to provide resources for a range of biodiversity priorities were identified. The connectivity of AES options implemented within CSFF groups was compared to the wider local landscape at different spatial scales. Not all scales analysed represent viable connectivity for all groups analysed because larger scales are beyond the distance travelled by groups of species accessing specific resources. The results across individual CSFF groups were variable, but overall the analysis indicated that CSFF group activity has a positive impact on connectivity of resource for almost all group/scales analysed despite the fact that group objectives do not necessarily address all the resource categories considered here. The results indicate an overall positive contribution of the CSFF to better connectivity and thus more resilient landscapes, with potential to improve connectivity for some specific species groups such as pollinators, granivorous birds and waders.

6.4.5 Alignment of AES option uptake with water quality and flood risk

Alignment of options which mitigate water quality issues and flood risk were further investigated through mapping of risk scores across catchments and overlaying relevant options for a subset of CSFF groups. The outputs vary, but demonstrate some positive alignment of AES options with areas of higher risk for water quality and flooding. Furthermore, where land use change or habitat maintenance is contributing to lower risk some AES options can be seen to positively impact water quality and flooding risk scores.

The risk maps can be used to help identify areas that might benefit from options that contribute to a reduction in risk type. For example, high scoring areas can be examined to identify what might be contributing to the high score (e.g. land use or topography) then an appropriate option can be identified which might help to mitigate these factors.

6.4.6 Likely environmental impact of CSFF based on views of facilitators and land managers

The online survey of facilitators revealed that only two thirds of the respondents (67%) thought that group plan objectives had at least been partially achieved. However, responses represent views on both implementation of management activity (inputs) and environmental outcomes (results/impacts) and negative responses may simply relate to the fact that environmental outcomes are not immediately realised. Lowest confidence was associated with woodland objectives, but this included concerns over an insufficient area planted and the fact that it was too early to assess success. Biodiversity objectives were most likely to have been at least partially met. However, data must be considered in the context of the facilitators' perspective, which may be more positive than an independent viewpoint.

In addition, greater confidence of land managers, both in understanding of environmental value of habitats/features and in their ability to deliver appropriate management, was reported both by facilitators and land managers surveyed. This is expected to contribute positively to environmental outcomes of facilitated agreements and more widely for land not specifically in agreement.

6.4.7 Socio-economic and wider impacts of CSFF

Social capital gains from CSFF group activities relate to increases in land manager awareness, attitudes and capacity to carry out environmental land management activities as a result of CSFF. Direct knowledge exchange is complemented by improvements in social capital, including collaborative working, motivation, information sharing, awareness, ownership, ability and confidence in addressing environmental issues, social interaction and trust.

Evidence on socio-economic and wider impacts was collected mainly through the online survey of facilitators and interviews with land managers in the case studies.

Results from the survey of facilitators suggest that the CSFF has had a relatively positive impact on a wide range of socio-economic indicators. This included increased awareness, expertise and confidence of land managers as well as increased collaboration. In relation to other measures of social capital, the CSFF is reported to have motivated a significant/moderate increase in trust between facilitator and members, social interaction, and information and knowledge sharing.

Wider impacts have typically been reported in the context of the effect that groups have had on members of the public. These results suggest that overall the CSFF facilitates a better engaged, more collaborative farming community that is more environmentally aware.

Land managers that were interviewed to form the 10 in-depth case studies echoed the facilitators' views that the CSFF has had social benefits. These typically related to meeting new people and learning from other land managers through group discussion and interaction. Often, group members were already familiar with each other because they were neighbours. The CSFF has reportedly helped enable social cohesion by providing a justification to get together, where otherwise they would not normally interact to this extent.

6.4.8 Success factors, enablers and barriers to achieving CSFF group objectives

Success factors, enablers and barriers to uptake of CSFF support were identified through the online survey of facilitators. Facilitators are likely to view the group activity and impact in a positive light and results of the survey must be considered in this context. However, many of the high level conclusions based on analysis of the data were also echoed by responses from land managers and, although this was a small sample, indications of impacts are positive.

The survey results suggest that additional funding to CSFF, the facilitator and training have been the most important enabling factors to achieving group goals.

Facilitators reported external funding as also having a positive motivational factor because it helps to maintain interest in the group and promotes activity. Additionally, those that scored external funding highly suggested that more complex and ambitious projects could be undertaken with the support of additional funding to CSFF.

Facilitators describe their role as very important to the success of the group. They viewed themselves as responsible for promoting the bottom up approach of the Facilitation Fund and being key in creating and maintaining the momentum of the group. This was borne out by the interviews with land managers.

Analysis of facilitator responses found that, with respect to group success factors, trust, relationships, communication, collaboration, and confidence were key.

6.4.9 Areas for improvement of CSFF

A few areas for improvement were identified through the survey of facilitators, which include:

- Provision for one to one advice (mentioned by 34% of the survey respondents)
- Simplification/streamlining of CSFF administration to reduce the administrative burden
- Improvement of the claim process to avoid delays in payments.

Other issues raised by facilitators or highlighted from the wider analysis include:

- CS bureaucracy/complexity can discourage uptake
- Limitations in the ability of the CSFF to affect change with respect to AES option uptake or placement because of pre-existing AES agreements
- Ability of groups to access external funding to support objectives was limited by both location (e.g. not an area of concern for water companies) and eligibility (i.e. additional grant support not always available)
- Legacy – CSFF lifespan is short: there is a consensus that for environmental outcomes to be sustainable there is a requirement for continued support in some form.

In addition, to support future monitoring and evaluation, the project team would recommend the following:

- Standardisation of group reporting so that all reporting follows a more consistent format, with key metrics reported in tabular format to allow data to be readily collated and compared across groups.
- More precise detail of priorities should be recorded in the group documentation which can be used to quantify and measure the progress of group activities and achievements.
- Identification of land by holding which will improve the accuracy by which environmental outcomes can be measured and compared between facilitated and non-facilitated agreements.

6.4.10 Conclusions

Assessment of actual environmental impacts was beyond the scope of this work, but the various analyses of uptake and option implementation suggest that AES activity on farms participating in CSFF groups should lead to more positive environmental outcomes than AES agreements which have not received CSFF funding. More significantly, there is evidence from both facilitators and a small number of selected group members of wider socio-economic impacts resulting from knowledge transfer and collaboration. In particular, a wide range of social capital benefits are realised including improving trust, communication and land manager confidence in working together to deliver shared environmental outcomes specific to their area.

7. REFERENCES

- ADAS, Fera & CCRI (2018) Countryside Stewardship Facilitation Fund. Monitoring and Evaluation: Phase 1 Interim Report. Draft report to Natural England.
- Bennett T, Phillips P, Sheate W, Eales R & Baker J. (2015) Countryside Stewardship Facilitation Fund Monitoring and Evaluation Scoping Study. Final Report to Defra and Natural England by Collingwood Environmental Planning Limited).
- Borthwick M & Sandison C. of the Soil Association (pers. comm., March 2019).
- Bray Y, Devillard S, Marboutin E, Mauvy B, & Peroux R. (2007) Natal dispersal of European hare in France. *Journal of Zoology*, **273**(4), 426-434.
- Castaño J, Blanco M & Martinez P. (2019) Reviewing Counterfactual Analyses to Assess Impacts of EU Rural Development Programmes: What Lessons Can Be Learned from the 2007–2013 Ex-Post Evaluations? *Sustainability*, **11**, 1105.
- CCRI (2012) Economics of co-ordination in Environmental Stewardship. Report to Defra & Natural England.
- Chow VT. (1959). 'Development of Uniform Flow and Its Formulas', in Open-channel hydraulics. New York: McGraw Hill Book Company, pp. 98-114.
- de Krom M. (2017) Farmer participation in agri-environmental schemes: Regionalisation and the role of bridging social capital. *Land Use Policy*, **60**, p.352-361.
- Eory V. of SRUC (pers. comm., March 2019).
- Garforth C, Angell B, Archer J, Green K. (2003) Fragmentation or creative diversity? Options in the provision of land management advisory services. *Land Use Policy* **20**/4, p323–333.
- Garforth GC, Rehman T, McKemey K, Tranter R, Cooke R, Yates C, Park J, Dorward P. (2004). Improving the design of knowledge transfer strategies by understanding farmer attitudes and behaviour. *J. Farm Manage.* **12** (1), 17–32.
- Gooday R, Anthony S, Chadwick D, Newell-Price P, Harris D, Duethmann D, Fish R, Collins A & Winter M. (2014). Modelling the cost-effectiveness of mitigation methods for multiple pollutants at farm scale. *Science of the Total Environment*, **468-469**, 1198-1209
- Hall J, & Pretty J. (2008). 'Buy in' and 'Buy out': Linking social capital and the transition to more sustainable land management. *Rural Futures: Dreams and Dangers*. University of Plymouth: Dilemmas.
- HMT (2011) The Magenta Book Guidance for evaluation. HMT, London.
- Jones N, Macarthur R, Boatman N, Crowe A (2018). Initial evaluation of the implementation of Countryside Stewardship in England. Report to Natural England.
- Knook J, Eory V, Brander M & Moran D. (2018) Evaluation of farmer participatory extension programmes. *The Journal of Agricultural Education and Extension*, **24**:4, p309-325.
- Knox JW, Rickson RJ, Weatherhead EK, Hess TM, Deeks LK, Truckell IJ, Keay CA, Brewere TR & Daccache A. (2015) Research to develop the evidence base on soil erosion and water use in agriculture. Report to the Committee on Climate Change.
- Leventon J, Schaal T, Velten S, Dänhardt J, Fischer J, Abson D, Newiga J. (2017) Collaboration or fragmentation? Biodiversity management through the common agricultural policy. *Land Use Policy*, **64**, p1–12.

- McHugh M, Wood G, Walling D, Morgan R, Zhang Y, Anthony S & Hutchins M. (2002) Prediction of Sediment Delivery to Watercourses from Land Phase II. R & D Technical Report No P2-209 for Environment Agency.
- Mills J, Gibbon D, Ingram J, Reed M, Short C & Dwyer J. (2011) Organising Collective Action for Effective Environmental Management and Social Learning in Wales. *Journal of Agricultural Education and Extension*, **17**(1), p.69-83.
- Moxey A. (2007) Developing Criteria for Consideration of Additional Measures of Progress on Sustainable Development in Scotland. Pareto Consulting report to Scottish Government.
- Pannell D & Vanclay F. (Eds. 2011) Changing land management: adoption of new practices by rural landholders. CSIRO Publishing.
- Pawson R & Tilley N. (1997) Realistic Evaluation. Sage.
- Prager K & Creaney R. (2017) Achieving on-farm practice change through facilitated group learning: Evaluating the effectiveness of monitor farms and discussion groups. *Journal of Rural Studies* **56**, p1-11.
- Prager K, University of Aberdeen (pers. comm., March 2019).
- Prager K. (2015) Agri-environmental collaboratives for landscape management in Europe. *Current Opinion in Environmental Sustainability*, **12**, 59–66.
- R Core Team (2018). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.
- Rickson J, Deeks L, Simmons R, Brewer T, Truckell I, Niziolowski J, Anthony S, Lee D, Gooday R, Newell-Price P, Collins A, Evans B, Foster I & Zhang Y. (2016) SP1318: Scaling up the benefits of field scale soil protection measures to understand their impact at the landscape scale. Final report to Defra Project SP1318.
- Roquette J. (2018) Habitat Opportunity Mapping in Northamptonshire and Peterborough. Report to Wildlife Trust for Bedfordshire, Northamptonshire County Council, Peterborough City Council, North Northants Joint Planning Unit, West Northants Joint Planning Unit, River Nene Regional Park, Natural England, and Environment Agency.
- Smith RK, Jennings NV, Robinson A & Harris S. (2004). Conservation of European hares *Lepus europaeus* in Britain: is increasing habitat heterogeneity in farmland the answer?. *Journal of Applied Ecology*, **41**(6), 1092-1102.
- Walther-Hellwig K & Frankl R. (2003) Foraging habitats and foraging distances of bumblebees, *Bombus spp.* (Hym., Apidae), in an agricultural landscape. *Journal of Applied Entomology*, **124**(7-8), 299-306.
- Westerink J, Jongeneel R, Polman, N, Prager K, Franks J, Dupraz P & Mettepenningen E. (2017) Collaborative governance arrangements to deliver spatially coordinated agri-environmental management. *Land Use Policy*, **69**, p176–192.
- White O, Eales R, Baker J, Sheate W, Twigger-Ross C, Sadauskis R, Papadopoulou L, Bennett T, Horton B & Hill C. (2015) Monitoring and Evaluation of Nature Improvement Areas: Final Report (2012-15). Report to Defra and Natural England by Collingwood Environmental Planning Limited).
- Zurbuchen A, Cheesman S, Klaiber J, Müller A, Hein S & Dorn S. (2010) Long foraging distances impose high costs on offspring production in solitary bees. *Journal of Animal Ecology*, **79**(3), 674-681.

APPENDIX 1 - COLLATION OF DATA FROM GROUP DOCUMENTATION

The research team used Huddle to gather group information submitted by facilitators. As facilitators uploaded their own group information onto Huddle there was an observable difference in the consistency of uploads with regards to content and organisation. Some facilitators provided more up to date information than others. Data from Huddle was collated by two researchers who communicated regularly to try and ensure consistent reporting onto the excel sheet. The division of collation was based on groups with one researcher covering areas one to six and eight, and another researcher completing, seven to 14, excluding eight. The decision to do this was based on the equal split between the number of groups and because groups are organised into these areas on Huddle. The data in the excel sheet was correct from May 2019. Further uploads to Huddle have not been included. As such, the data in the excel sheet should be considered a snapshot in time rather than an up to date record of all group activity. Difficulties associated with data collation were the organisation of forms into folders, the difference in detail provided by facilitators and the fact that some files were password protected. Password protected files were able to be unlocked with help from Natural England and all files were examined and relevant data extracted.

Table A1-0-1 Quantitative data sources

Document	Information extracted	Limitations	Assumptions
Master SBI sheet	Group members	Information is a cut of data in early 2019.	SBI (Single Business Identifier) and agreement numbers were correctly entered
Group application	Number of group members at start, the group start date, land covered when the group was set up, whether they have a group agreement, type of current facilitator organisation, experience of facilitator	Consistently reported on the excel sheet	Groups that were formed under a year prior to application date were newly created for the CSFF. Not always clear and unreliably recorded.
Claim forms	Group events, details of changes to facilitator	Some facilitators provided more detail than others and more consistently. E.g. some facilitators recorded themselves completing a farm visit as an event.	Events have been recorded in the excel sheet as per the facilitator's claim submission.
Evaluation forms	Number of attendees	Inconsistently collected by facilitators and not always clear whether they were group members or public	Attendees have been recorded as they appear on the evaluation form
Group plan	Group outcomes	Multiple outcomes are often listed and the main focus is not clear	
Information provided directly by NE	Number of current group members and grant size	Used for case studies but group members are more up to date than the version of SBI used on excel sheet	

Data gaps

Gaps and inconsistencies in data are explained in the below sections relating to the facilitator and events.

Facilitator and group data

The experience of the facilitator is recorded on the group application but where groups have had a change of facilitator their experience is not often detailed. The experience of the facilitator is categorised, 'none', 'some' and 'considerable' based on information provided in the group application. A judgement was made based on their job and background. Typically, facilitators were well qualified and connected in their local area. From the excel sheet, there are few groups that have had a change of facilitator. The reasons for facilitator change was not always clear. It was also not always apparent that a change had occurred and some changes were only identified due to different signatures on claim forms.

Some facilitators were supported by another person in order to facilitate the group. Individuals playing this supporting role were recorded on the group and baseline tab, but their level of contribution to the group is not reported. It was also difficult to ascertain whether a group was pre-existing and from the facilitator survey it is clear that many group members knew of each other before the Facilitation Fund group was officially established. From the facilitator survey, some groups indicated that members were working together in some capacity before the formation of a CSFF group but groups were only considered to be pre-existing if they had a formal arrangement prior to the Facilitation Fund.

Group priorities were difficult to determine because there was a tendency to include all priorities on application forms and group plans, although some groups did have very specific priorities and plans. Therefore, groups would have multiple priorities and the change and refinement of priorities was not necessarily captured on the excel sheet despite facilitators frequently reporting changes and refinement to priorities in the facilitator survey. It is difficult to assess whether a group has achieved an outcome that was defined at its formation because evidence is not collected on progress against their aims.

Annual reports were not found to be a useful source of information and they were not consistently uploaded to huddle by facilitators.

Event data

Facilitators report events differently and group activity can be ongoing without being an actual event. This is a significant gap in the outputs here with individual facilitators inconsistently recording group activities as events. Additionally, depending on the level of detail provided by facilitators it was difficult to determine the subject of events. For example, some facilitators have reported 'a farm visit to recruit members' as an event whereas other facilitators would not view that as a group event as a consequence not report it. Additionally, group activity can occur without being a specific event. For example, some members have taken part in individual soil sampling but with the overall aim to share results and improve soil health of the group. This was not considered an 'event' but activity, such as this, was deemed worthy of recording and was included in the outputs on the excel sheet.

It was difficult to define when an event becomes 'joint' and this was based on a judgement by the researcher. For example, if an organisation such as the RSPB attended an event this was not always recorded as a joint event. A joint event was only recorded as 'joint' if an organisation had significant input into the event or ran the event. Also, if an event was hosted in partnership with another group, the same event may be captured multiple times on the same excel sheet, skewing the data set.

Attendance at events was also inconsistently reported. Some facilitators only reported the attendance of group members whereas others reported the attendance of everyone regardless of membership. Some facilitators measured the success of events by number of attendees but this could

be viewed as unhelpful because both facilitators and land managers reported that smaller groups were often more effective for learning. Attendees were recorded on the excel sheet as they were shown on evaluation forms. In some cases, there was a differentiation between group members and attendees from the wider community which was recorded. High attendance figures were typically where the group had contributed to a larger event, such as Open Farm Sunday. For events such as these it is difficult to attribute the contribution made by the Facilitation Fund and whether it played a role in event attendance and organisation.

Group agreements often did not include much detail. They were typically a generic document stating that group problems would be escalated. As a consequence, the decision was taken to not record this data in the excel sheet.

APPENDIX 2 – SPATIAL DATA PROCESSING

Natural England provided the following datasets to conduct this analysis:

- An Excel Spreadsheet (known as the Master SBI Sheet) containing a list of all members involved in each of the Facilitation Fund groups along with the members Single Business Identifier (SBI) and details of any CS or ES agreements that this member has in the Facilitation Fund.
- An anonymised spatial dataset of Customer and Land Database (CLAD) polygons showing both the extent of all SBI holdings and the individual parcels which make up each SBI holding.
- A point dataset depicting the location of all CS agreements at the parcel level (March 2019).
- A point dataset depicting the location of all ES agreements at the parcel level (May 2019).

Identifying CS and ES land parcels with each Facilitation Fund group

The Master SBI Sheet listed all members of each Facilitation Fund group, their associated SBI number and whether the member had a CS or ES agreement (current, expired and awaiting confirmation) within in the Facilitation Fund group. Some members had both a CS and ES agreement within a group, while other members only had an SBI recorded.

Land currently within a CS agreement was deemed to be the most important feature to map for each of the Facilitation Fund groups. As a result, all members that had a CS agreement associated against them were initially extracted out from the Master SBI list into a new spreadsheet.

The spreadsheet of Facilitation Fund members that had a CS agreement was joined to the CS Agreement point dataset using the agreement reference number as the join field. This created a new point dataset consisting solely of CS agreement points that corresponded with the agreement held by Facilitation Fund members.

A spatial join was then conducted between the CS agreement point dataset and the CLAD parcel polygon data to select all CLAD parcels that were intersected by an agreement point. The spatial join was run as a one to many join as there were multiple instances in which there were several CS agreement points relating to the same CLAD parcel, with each point referring to a different option type registered to the parcel. Performing a one to many spatial join ensured that the resulting polygon output dataset created a parcel polygon for each option at that location to ensure that no option information was lost. A one to one join on other hand would only output a single parcel regardless of how many agreement points were associated with the parcel.

There were however several CS agreement numbers that did not join to the CS Agreement Point dataset. It is presumed that this is because these agreement numbers had not yet been added to the cut of CS agreement point data that the project was working from.

Members from the Master SBI Sheet who had an ES reference associated with them (or had failed to join based on their CS agreement but also had an ES reference) were extracted from the Master SBI sheet. A similar process as discussed above was undertaken only in this instance, each member's ES reference number was joined to the ES agreement point data before then being spatially joined to the CLAD parcel data.

The newly created CS and ES parcel data selected the parcels contained by each Facilitation Fund and listed the CS or ES option linked to this parcel. As option categories differ slightly between CS and ES agreements, an equivalency table was used to convert ES options into the equivalent CS option. This allowed the CS and ES parcel data to be joined into a single dataset that contained among other data the following information for each parcel:

- Agreement number
- Option type

- Facilitation Fund Group
- Owner details
- Parcel Number
- SBI

After mapping the CS and ES parcels it became apparent that while the majority of CS and ES parcels belonging to individual Facilitation Fund groups were clustered together in the same location, there were several instances where a parcel or parcels associated with a particular Facilitation Fund Group were located away from the rest of the cluster.

To limit the effect that these outlier parcels would have in defining the Facilitation Fund group boundaries, outlier parcels located more than 25 km from the main cluster of Facilitation Fund group parcels were removed.

Land not currently in agreement

In addition to mapping the parcels associated with either a CS or ES agreement for each Facilitation Fund group, all land associated with all the members of each group was also mapped. To do this the SBI information for each group member was extracted from the Master SBI Sheet. This data was joined to the CLAD parcel data to select all parcels that had an SBI matching the SBI data from the Master SBI Sheet.

Land associated with an SBI can extend over a wide area, particularly for large landowners who have lands parcels located across England but only have a single SBI that covers all their holdings. In order to limit the extent of the SBI parcels to parcels close to each Facilitation Fund group it was necessary to constrain the SBI parcel data to only select parcels that were within a proximity of the related Facilitation Fund group.

To do this the extent of each Facilitation Fund group, as defined by the parcels in the combined CS and ES dataset were used to create a Facilitation Fund group boundary based on their spatial extent.

A boundary was created for each Facilitation Fund group by buffering the CS and ES parcel extent out by 2 km. This boundary was used to select any SBI parcel that intersected the buffered extent. A new dataset was created from the selected SBI parcels, with each parcel attributed with the details of the particular Facilitation Fund group that it belonged to.

The data was uploaded to ArcGIS Online as features layers and added to a Web Map. Each layer was symbolised appropriately, with the combined CS and ES agreement parcel data being symbolised by Facilitation Fund group and option type at smaller scales.

Alignment of option uptake with CS priorities

Firstly the area of interest for each group was determined using a 5% area membership rule for National Character Areas (NCA). This rule defines the Facilitation Fund Group Area that is expected to have the same landscape characteristics and drivers as the Facilitation Fund groups are operating under. The boundary for each Facilitation Fund Group Area is defined by combining NCAs which contain at least 5% of the area under agreement within the Facilitation Fund Group. The selected NCAs for each group were merged into a single polygon feature and appended to an ArcGIS polygon dataset using a python script calling the arcpy module to undertake the spatial processing. Although this would normally produce a single polygon defined by adjacent NCAs, it can also lead to the Facilitation Fund Group Area being defined by multiple polygons if the group is facilitated by national bodies (e.g. Butterfly Conservation, National Trust). The Facilitation Fund Group Area were used to identify all the rural land registry (RLR) parcels within the area of interest for each Facilitation Fund group and the targeting information for those parcels were extracted from the 2015 “HAT” targeting data.

A single lookup table was created by merging the biodiversity and resource protection CS option-targeting layer associations identified in the CS Implementation project. The Environmental Stewardship (ES) options for legacy agreements which are still operating within the Facilitation Fund Group Area were translated into the equivalent CS option. However, in some cases there is no direct CS option which is considered to be a replacement for an ES option and so these untranslatable ES options are lost from the analysis. The CS and translated ES options for each Facilitation Fund group were joined with the CS option-targeting layer lookup table. The joined dataset was then queried against the identified targets in the NCA based Facilitation Fund group area to identify the number of options addressing each priority and identifying which priorities are not covered within the agreements in the group.

Connectivity of options within CSFF groups

The CS Facilitation Fund Group Areas from the targeting analysis were used to select out all the CS and ES parcels present within the CS Facilitation Fund area. Parcels were then extracted into two new datasets based on whether the parcels are part of an agreement within the CS Facilitation Fund group or are part of an agreement outside of the group. The parcels within each of the datasets was converted to their centroids and the easting and northing for the centroid was associated with each point. The records for each dataset were then exported out to a comma separated value (csv) file.

Appendix 4 contains the list of which options are associated with each option group, the lists having been drawn up as part of the CS Implementation project (LM0464). The option csv files for each group were read into a python script using the pandas module, with each parcel being assigned an ID by concatenating the easting and northing. For each option group, the parcels containing those options were selected from the dataset and loaded into a network representation, using the NetworkX package, with parcels as nodes and the edges weighted by the distance between the nodes. Each network was then limited to only contain edges at or below a threshold distance of 250 m, 500 m, 1000 m, 2000 m or 5000 m.

The analysis of significance for the network connectivity is achieved by comparing the observed mean degree⁹ for the Facilitation Fund group network against 1000 randomly generated networks. These networks are generated by randomly selecting the same number of agreements as are present in the Facilitation Fund group from either all the agreements within the Facilitation Fund Group Area or from the agreements not in the Facilitation Fund group but within the Facilitation Fund Group Area. If the mean degree for the Facilitation Fund group is greater than 95% of the mean degree values for the randomly generated networks, then this is considered as a statistically significant greater connectivity than expected from an uncoordinated group of the same size within the Facilitation Fund Group Area. Each Facilitation Fund network was then assigned to one of five classes based on the mean degree; 0 (either because the appropriate options were not present or all distances were greater than the threshold distance), '-' where the observed mean degree is less than the median mean degree for the 1000 random networks (less connected than expected), 'm' where the observed mean degree is equal to the median mean degree for the 1000 random networks (same level of connectivity as expected), '+' where the observed mean degree is greater than the median mean degree for the 1000 random networks but not greater than or equal to the 95th percentile (greater connectivity than expected but not statistically significant), and '++' where the observed mean degree is greater than or equal to the 95th percentile mean degree for the 1000 random networks (greater connectivity than expected that is statistically significant).

⁹ Degree represents the number of connections a node has to other nodes within the network. In this case it would represent the number of other species group options reachable from the option location given the distance threshold applied

**APPENDIX 3 - CS FACILITATION FUND GROUP MEAN AGREEMENT SCORES
FOR OPTION RICHNESS, OPTION DIVERSITY AND AGREEMENT VALUE**

	Option Richness		Option Diversity		Option Value	
CSFF ID	In CSFF	Outside CSFF	In CSFF	Outside CSFF	In CSFF	Outside CSFF
10003	11.80	5.82	1.71	1.26	84297	42618
10005	8.80	7.63	1.57	1.47	62537	87721
10006	9.60	9.05	1.64	1.49	128495	96249
10008	11.00	8.00	1.79	1.54	127377	114454
20001	8.66	7.01	1.47	1.20	42323	60285
20002	10.04	8.87	1.55	1.50	78169	107014
20003	9.09	9.57	1.40	1.58	67408	117985
20006	10.25	9.44	1.59	1.55	57084	105056
20007	10.06	9.63	1.54	1.57	69189	125019
20008	9.80	9.19	1.55	1.53	57917	116310
20009	10.07	7.80	1.62	1.38	68152	64223
20011	10.10	8.42	1.66	1.45	52229	60077
30003	9.59	7.21	1.50	1.40	60325	94168
30004	9.30	7.64	1.60	1.39	46134	67257
30006	9.19	7.12	1.49	1.36	58897	86209
30007	9.13	7.05	1.48	1.33	60993	83234
30008	9.59	7.21	1.50	1.40	60325	94168
30009	9.59	7.21	1.50	1.40	60325	94168
30010	9.49	7.16	1.50	1.38	56055	80504
30011	9.59	7.21	1.50	1.40	60325	94168
30012	9.30	8.07	1.60	1.43	46134	82113
30013	10.64	8.30	1.71	1.47	66904	64985
40001	9.65	7.14	1.61	1.26	65650	62259
40005	11.31	7.50	1.84	1.44	119518	92333
40006	10.72	7.49	1.74	1.46	62830	43979
40007	10.03	8.68	1.69	1.55	46054	43455
40008	7.20	6.09	1.39	1.14	77204	51893
40009	10.03	8.68	1.69	1.55	46054	43455
40012	9.65	7.14	1.61	1.26	65650	62259
50001	10.50	7.56	1.32	1.36	130165	96042
50003	11.14	7.35	1.88	1.40	39866	43689

	Option Richness		Option Diversity		Option Value	
CSFF ID	In CSFF	Outside CSFF	In CSFF	Outside CSFF	In CSFF	Outside CSFF
50005	12.32	7.57	1.75	1.44	159160	60060
50007	10.64	8.13	1.76	1.52	126008	207693
50008	14.06	7.76	1.86	1.40	101169	78194
50009	10.55	6.68	1.36	1.26	129173	81789
50010	13.68	7.76	1.82	1.40	99519	71669
50011	9.40	6.69	2.26	1.29	102048	65372
60001	9.15	8.94	1.65	1.59	38901	45339
60004	8.75	8.67	1.63	1.55	29653	44050
60005	8.75	8.67	1.63	1.55	29653	44050
60006	9.00	7.26	1.71	1.42	37665	51133
60007	8.36	8.75	1.38	1.55	40955	45529
60008	8.25	7.14	1.65	1.39	35574	69371
60009	10.94	7.64	1.81	1.48	46871	41618
70003	10.88	8.16	1.74	1.51	60229	41567
70005	10.96	7.40	1.77	1.44	61537	41484
70006	10.58	7.33	1.76	1.42	54469	39145
70007	10.75	7.45	1.63	1.40	131411	56921
70008	10.86	7.82	1.70	1.47	106910	52878
70010	8.42	7.77	1.47	1.44	31092	37261
70012	9.41	7.37	1.74	1.40	22337	31654
70013	11.55	7.72	1.79	1.47	65013	44419
70014	10.32	7.19	1.72	1.40	50553	39657
70015	10.96	7.40	1.77	1.44	61537	41484
80001	11.45	7.64	1.82	1.45	34150	60014
80002	11.45	7.64	1.82	1.45	34150	60014
90001	9.94	7.58	1.67	1.44	60214	91473
90002	12.57	8.93	1.89	1.60	146287	61388
90005	9.14	6.63	1.22	1.25	130165	84920
90006	9.94	7.58	1.67	1.44	60214	91473
90007	9.94	7.58	1.67	1.44	60214	91473
90009	13.03	9.24	1.96	1.61	147468	75689
100002	9.89	7.11	1.63	1.34	62330	58661
100003	8.59	6.60	1.42	1.27	101099	74068

	Option Richness		Option Diversity		Option Value	
CSFF ID	In CSFF	Outside CSFF	In CSFF	Outside CSFF	In CSFF	Outside CSFF
100004	10.09	7.77	1.54	1.44	160872	59204
110003	14.09	7.24	1.92	1.40	123344	61619
110005	18.00	5.00	2.31	1.20	157696	48766
110006	14.09	7.24	1.92	1.40	123344	61619
110007	13.20	7.61	2.06	1.34	93448	63710
110008	11.64	8.13	1.79	1.49	57962	36082
110009	8.38	9.84	1.68	1.68	87373	101001
110010	10.34	8.61	1.75	1.52	45584	62728
110012	7.00	5.21	1.14	1.13	17560	39099
120001	7.52	8.70	1.63	1.53	85865	47763
120002	8.33	7.00	1.55	1.35	26644	29529
120003	11.64	8.13	1.79	1.49	57962	36082
120004	10.34	8.61	1.75	1.52	45584	62728
120005	10.91	6.37	1.72	1.26	127005	46244
120006	8.33	7.00	1.55	1.35	26644	29529
120007	8.29	7.05	1.53	1.35	24428	31285
120008	8.87	8.30	1.64	1.48	70182	87396
120009	8.87	8.30	1.64	1.48	70182	87396
120010	10.88	6.29	1.68	1.26	112808	47712
130001	10.69	7.61	1.55	1.39	70581	70270
130002	11.71	8.80	1.88	1.55	128016	95183
130004	15.38	7.63	2.13	1.40	115129	65690
130007	9.52	9.53	1.65	1.63	64338	79172
140002	12.44	8.87	1.99	1.57	147546	123990
140007	9.48	6.51	1.65	1.24	97314	73431
140008	11.70	7.00	1.90	1.31	161988	77865
140009	8.67	6.63	1.43	1.28	85694	66102
140011	8.10	7.00	1.36	1.35	71621	69682
140012	11.81	7.10	1.85	1.33	140061	77188
140013	5.78	5.44	1.26	1.08	62081	43980

APPENDIX 4 – OPTION GROUP LISTS FOR CONNECTIVITY ASSESSMENTS

Table A4-1 Option group lists¹⁰. WG-Winter Granivores; SG-Summer Granivores; WW-Winter Waders; SW-Summer Waders; NF-Nesting (Field); NB-Nesting (Boundary); PF-Pollinator Foraging; AP-Arable Plants; H-Hare

WG	SG	WW	SW	NF	NB	PF	AP	H
AB2	AB7	GS10	GS9	AB3	BE3	AB1	AB10	AB2
AB6	AB8	GS12	GS11	AB4	WD3	AB8	AB11	AB6
AB7	AB9		UP1	AB5	WD7	AB9	AB14	AB9
AB9	AB10		UP2	AB14	WD8	AB10	OP2	AB14
AB10	AB13		UP3	GS2	WD9	AB14		OP1
AB13	AB14			GS5	WT1	AB15		OP2
AB16	AB15			GS6	WT2	AB16		OP5
GS3	AB16			GS7	WT3	BE3		
OP1	GS2			GS8		BE4		
OP2	GS5			GS9		BE5		
	GS6			GS11		GS1		
	GS7			GS16		GS2		
	GS8			OP4		GS4		
	GS9			UP1		GS5		
	GS17			UP2		GS6		
	OP2			UP3		GS7		
	OP4					GS8		
	OP5					GS15		
	UP1					OP2		
	WD3					OP4		
	WD7							
	WD8							
	WD9							
	WT1							
	WT2							
	WT3							

¹⁰ Full explanation of option codes can be found here: <https://www.gov.uk/countryside-stewardship-grants>

APPENDIX 5 – WATER QUALITY AND FLOOD RISK DATASETS AND OUTPUTS

Table A5-1 ES Options for water quality and flood management

OPTCODE	OPTTITLE	Water Quality	Flood management
DR	Ditch, dyke and rhine restoration		✓
EB1	Hedgerow management for landscape (on both sides of a hedge)	✓	✓
EB10	Combined hedge and ditch management (incorporating EB3)	✓	✓
EB12	Earth bank management (on both sides)		✓
EB13	Earth bank management (on one side)		✓
EB14	Hedgerow restoration	✓	✓
EB6	Ditch management		✓
EB7	Half ditch management		✓
EB8	Combined hedge and ditch management (incorporating EB1)		✓
EB9	Combined hedge and ditch management (incorporating EB2)		✓
EC	Creation of earthbanks		✓
EC1	Protection of in-field trees (arable)	✓	✓
EC2	Protection of in-field trees (grassland)	✓	✓
EC23	Establishment of hedgerow trees by tagging	✓	✓
EC24	Hedgerow tree buffer strips on cultivated land	✓	✓
EC25	Hedgerow tree buffer strips on grassland	✓	✓
EE1	2m buffer strips on cultivated land	✓	
EE10	6m buffer strips on intensive grassland next to a watercourse	✓	✓
EE2	4m buffer strips on cultivated land	✓	✓
EE3	6m buffer strips on cultivated land	✓	✓
EE4	2m buffer strips on intensive grassland	✓	✓
EE5	4m buffer strips on intensive grassland	✓	✓
EE6	6m buffer strips on intensive grassland	✓	✓
EE7	Buffering in-field ponds in improved grassland	✓	
EE8	Buffering in-field ponds in arable land	✓	
EE9	6m buffer strips on cultivated land next to a watercourse	✓	✓
EF1	Field corner management	✓	
EF10	Unharvested cereal headlands for birds and rare arable plants	✓	
EF11	Uncropped, cultivated margins for rare plants on arable land	✓	
EF13	Uncropped cultivated areas for ground-nesting birds - arable	✓	
EF22	Extended overwintered stubbles	✓	
EF6	Over-wintered stubbles	✓	
EF7	Beetle banks	✓	
EJ11	Maintenance of watercourse fencing	✓	✓
EJ13	Winter cover crops	✓	
EJ2	Management of maize crops to reduce soil erosion	✓	
EJ5	In-field grass areas	✓	✓
EJ9	12m buffer strips for watercourses on cultivated land	✓	✓
EK2	Permanent grassland with low inputs: outside SDA & ML	✓	

OPTCODE	OPTTITLE	Water Quality	Flood management
EK3	Permanent grassland with very low inputs: outside SDA & ML	✓	
EL1	Field corner management: SDA land	✓	
EL2	Permanent in-bye grassland with low inputs: SDA land	✓	
EL3	In-bye pasture & meadows with very low inputs: SDA land	✓	
ER	Earth bank restoration		✓
ER2010	Earth bank restoration		✓
GBC	Grip Blocking Drainage Channels	✓	✓
GBC2010	Grip Blocking Drainage Channels	✓	✓
GBD	Grip blocking on difficult sites	✓	✓
HB14	Management of ditches of very high environmental value	✓	✓
HC1	Protection of in-field trees on arable land	✓	
HC10	Creation of woodland outside of the SDA & ML	✓	✓
HC12	Maintenance of wood pasture and parkland	✓	✓
HC13	Restoration of wood pasture and parkland	✓	✓
HC14	Creation of wood pasture	✓	✓
HC2	Protection of in-field trees on grassland	✓	✓
HC20	Restoration of traditional orchards	✓	✓
HC21	Creation of traditional orchards	✓	✓
HC24	Hedgerow tree buffer strips on cultivated land	✓	✓
HC5	Ancient trees in arable fields	✓	✓
HC7	Maintenance of woodland	✓	✓
HC8	Restoration of woodland	✓	✓
HC9	Creation of woodland in the SDA	✓	✓
HD7	Arable reversion by natural regeneration	✓	
HE1	2 m buffer strips on cultivated land	✓	✓
HE10	Floristically enhanced grass margin	✓	
HE2	4 m buffer strips on cultivated land	✓	✓
HE3	6 m buffer strips on cultivated land	✓	✓
HE4	2 m buffer strips on intensive grassland	✓	✓
HE5	4 m buffer strips on intensive grassland	✓	✓
HE6	6 m buffer strips on intensive grassland	✓	✓
HE8	Buffering in-field ponds in arable land	✓	
HF6	Overwintered stubble	✓	
HF7	Beetle banks	✓	
HG7	Low input spring cereal to retain or re-create an arable mosaic	✓	
HJ3	Reversion to unfertilised grassland to prevent erosion/run-off	✓	✓
HJ4	Reversion to low input grassland to prevent erosion/run-off	✓	✓
HJ5	In-field grass areas to prevent erosion or run-off	✓	✓
HJ6	Preventing erosion or run-off from intensively managed grassland	✓	✓
HJ7	Seasonal livestock removal from intensively managed grassland	✓	
HJ9	12 m buffer strips for watercourses on cultivated land	✓	✓

OPTCODE	OPTTITLE	Water Quality	Flood management
HK10	Maintenance of wet grassland for wintering waders and wildfowl		✓
HK11	Restoration of wet grassland for breeding waders.		✓
HK12	Restoration of wet grassland for wintering waders and wildfowl		✓
HK13	Creation of wet grassland for breeding waders		✓
HK14	Creation of wet grassland for wintering waders and wildfowl		✓
HK3	Permanent grassland with very low inputs	✓	
HK6	Maintenance of species-rich, semi-natural grassland	✓	
HK7	Restoration of species-rich, semi-natural grassland	✓	
HL10	Restoration of moorland	✓	✓
HL12	Management of heather, gorse and grass	✓	✓
HL3	Permanent grassland with very low inputs in SDAs	✓	✓
HL9	Maintenance of moorland	✓	✓
HO1	Maintenance of lowland heathland	✓	✓
HO2	Restoration of lowland heath	✓	✓
HO3	Restoration of forestry areas to lowland heathland	✓	✓
HO4	Creation of lowland heathland from arable or improved grassland	✓	✓
HP10	Supplement for extensive grazing on saltmarsh		✓
HP5	Maintenance of coastal saltmarsh		✓
HP6	Restoration of coastal saltmarsh		✓
HQ2	Maintenance of ponds of high wildlife value > 100 sq m	✓	✓
HQ3	Maintenance of reedbeds	✓	✓
HQ4	Restoration of reedbeds	✓	✓
HQ5	Creation of reedbeds	✓	✓
HQ6	Maintenance of fen	✓	✓
HQ7	Restoration of fen	✓	✓
HQ8	Creation of fen	✓	✓
HR	Hedgerow restoration includes laying, coppicing and gapping up	✓	✓
HR2010	Hedgerow restoration includes laying, coppicing and gapping up	✓	✓
OB14	Hedgerow restoration	✓	✓
OB6	Ditch management		✓
OB7	Half ditch management		✓
OC24	Hedgerow tree buffer strips on rotational land	✓	✓
OE1	2m buffer strips on rotational land	✓	✓
OE2	4m buffer strips on rotational land	✓	✓
OE3	6m buffer strips on rotational land	✓	✓
OE6	6m buffer strip on organic grassland	✓	✓
OE9	6m buffer strips on rotational land next to a watercourse	✓	✓
OF7	Beetle banks	✓	
OHC2	Protection of in-field trees on organic grassland	✓	✓

OPTCODE	OPTTITLE	Water Quality	Flood management
OHE3	6 m buffer strips on rotational land	✓	✓
OHE6	6 m buffer strips on organic grassland	✓	✓
OHE7	Buffering in-field ponds in organic grassland	✓	✓
OHE8	Buffering in-field ponds in rotational land	✓	
OHF1	Management of field corners	✓	
OHF4	Nectar flower mixture	✓	
OHF4NR	Nectar flower mixture	✓	
OHF7	Beetle banks	✓	
OHJ11	Maintenance of watercourse fencing	✓	
OHK2	Permanent grassland with low inputs	✓	
OHK3	Permanent grassland with very low inputs	✓	
OHL3	Permanent grassland with very low inputs in SDAs	✓	
OJ11	Maintenance of watercourse fencing	✓	
OK2	Permanent grassland with low inputs: outside SDA & ML(organic)	✓	
OK3	Permanent grassland with very low inputs:outside SDA&ML(organic)	✓	
OL2	Permanent in-bye grassland with low inputs: SDA land(organic)	✓	
OL3	In-bye pasture & meadows with very low inputs: SDA land(organic)	✓	
OU1	Organic Management	✓	
PCP	Pond creation > 100 sq m	✓	✓
PH	Hedgerow planting - new hedges	✓	✓
PR	Pond restoration - first 100 sq m	✓	✓
PRP	Pond restoration > 100 sq m	✓	✓
RPD	Cross drains under farm tracks	✓	✓
S1	Soil bund		✓
SCP	Creation of temporary ponds > 100m sq	✓	✓
SCR	Creation of temporary ponds - first 100m sq	✓	✓
STT	Planting standard parkland/hedgerow tree	✓	✓
UJ12	Winter livestock removal next to streams, rivers and lakes	✓	

Table A5-2 CS Options for water quality and flood management

OPT_CODE	OPT_DESC	Water Quality	Flood management
AB1	AB1 - Nectar Flower Mix	✓	
AB10	AB10 - Unharvested cereal headland	✓	✓
AB16	AB16 - Autumn Sown BumbleBird Mix	✓	
AB2	AB2 - Basic Overwinter stubble	✓	
AB3	AB3 - Beetle banks	✓	
AB6	AB6 - Enhanced overwinter stubble	✓	
BE1	BE1 - Protection of in-field trees on arable land	✓	✓

OPT_CODE	OPT_DESC	Water Quality	Flood management
BN11	BN11 - Planting new hedges	✓	✓
BN3	BN3 - Earth bank creation		✓
BN4	BN4 - Earth Bank Restoration		✓
BN5	BN5 - Hedgerow laying	✓	✓
BN7	BN7 - Hedgerow Gapping	✓	✓
CT3	CT3 - Management of coastal saltmarsh		✓
GS1	GS1 - Take field corners and small areas out of management	✓	
GS13	GS13 - Management of grassland for target features		✓
GS17	GS17 - Lenient Grazing Supplement	✓	
GS2	GS2 - Permanent grassland with very low inputs (outside SDAs)	✓	
GS5	GS5 - Permanent grassland with very low inputs in SDA	✓	
GS9	GS9 - Management of wet grassland for breeding waders		✓
LH1	LH1 - Management of lowland heathland		✓
OP1	OP1 - Overwintered stubble	✓	
OR1	OR1 - Organic conversion - improved permanent grassland	✓	
OT1	OT1 - Organic land management - improved permanent grassland	✓	
OT2	OT2 - Organic Land Management - unimproved permanent grassland	✓	
RP1	RP1 - Resurfacing of gateways	✓	
RP13	RP13 - Yard - underground drainage pipework	✓	
RP15	RP15 - Concrete yard renewal	✓	
RP16	RP16 - Rainwater goods	✓	✓
RP17	RP17 - Storage tanks underground	✓	
RP18	RP18 - Above ground tanks	✓	✓
RP2	RP2 - Gateway relocation	✓	
RP26	RP26 - Biofilters	✓	
RP27	RP27 - Sprayer or applicator load and washdown area/sq m	✓	
RP28	RP28 - Roofing (sprayer washdown area, manure storage area, ...)	✓	
RP4	RP4 - Livestock and machinery hardcore tracks	✓	
RP5	RP5 - Cross drains/unit	✓	
RP7	RP7 - Sediment ponds and traps/sq m	✓	
RP9	RP9 - Earth banks and soil bunds/unit	✓	
SW1	SW1 - 4-6m buffer strip on cultivated land	✓	
SW10	SW10 - Seasonal livestock removal on intensive grassland	✓	✓
SW11	SW11 - Riparian management strip	✓	✓
SW14	SW14 - Nil fertiliser supplement	✓	
SW2	SW2 - 4-6m buffer strip on intensive grassland	✓	
SW3	SW3 - In-field grass strips	✓	✓
SW4	SW4 - 12-24m watercourse buffer strip on cultivated land	✓	✓
SW6	SW6 - Winter cover crops	✓	✓

OPT_CODE	OPT_DESC	Water Quality	Flood management
SW7	SW7 - Arable reversion to grassland with low fertiliser inputs	✓	✓
SW8	SW8 - Management of intensive grassland adjacent to a watercourse	✓	✓
SW9	SW9 - Seasonal livestock removal on intensive grassland	✓	✓
TE1	TE1 - Planting Standard Hedgerow Tree	✓	✓
TE4A	TE4A - Woodland Tree Planting - Biodiversity	✓	✓
TE4D	TE4D - Woodland Tree Planting - Hedges and clumps	✓	✓
TE5	TE5 - Woodland Tree Planting - Treeshelter Supplement	✓	✓
UP2	UP2 - Management of rough grazing for birds	✓	
UP3	UP3 - Management of Moorland	✓	✓
UP5	UP5 - Moorland re-wetting supplement	✓	✓
UP6	UP6 - Upland livestock exclusion supplement	✓	
WD2	WD2 - Woodland improvement	✓	✓
WD3	WD3 - Woodland edges on arable land	✓	✓
WD4	WD4 - Management of wood pasture and parkland	✓	✓
WD5	WD5 - Restoration of wood pasture and parkland	✓	✓
WD8	WD8 - Creation of successional areas and scrub	✓	✓
WD9	WD9 - Livestock exclusion supplement - scrub and successional areas	✓	
WN10	WN10 - Construction of water penning structures	✓	
WN2	WN2 - Creation of scrapes and gutters		✓
WN3	WN3 - Ditch, Dyke and Rhine Restoration		✓
WN4	WN4 - Ditch, Dyke and Rhine Creation		✓
WN5A	WN5A - Pond Management - creation (first 100 sq m)	✓	✓
WN5B	WN5B - Pond Management - restoration - first 100 sq m	✓	✓
WT12	WT12 - Wetland grazing supplement		✓
WT2	WT2 - Buffering in-field ponds and ditches on arable land	✓	
WT3	WT3 - Management of ditches of high environmental value	✓	✓
WT4	WT4 - Management of ponds of High Wildlife value (100 sq m or less)	✓	
WT5	WT5 - Management of ponds of High Wildlife value (more than 100 sq m)	✓	✓
WT6	WT6 - Management of reedbed	✓	✓
WT8	WT8 - Management of fen	✓	✓

Table A5-3 Datasets used in water risk analyses

Dataset	Owner	Description	Usage
CROME Land Use 2017	RPA	The Crop Map of England (CROME) is a classified land use map produced using remote sensing techniques.	Baseline agricultural land use.
National Forest Inventory (NFI)	FC	A mapped inventory showing the extent of all woodland of 0.5 ha and over by interpreted forest type and includes interpreted open areas within woodland.	Used to override the land use of the CROME cell (if not woodland) if the centroid of the cell fell within the mapped area. Nutrient losses set to zero under the assumption that these will be negligible compared with agricultural losses.
National Habitat Network (Individual Layers) – Primary Habitat	NE	NE used a standard process to create 18 separate habitat network maps that cover England. They created these maps to provide a national overview of the distribution of habitat networks with suggestions for future action that might enhance biodiversity. There are a number of habitats with no network at present, e.g. wood pasture & parkland, coastal floodplain grazing marsh. The Primary Habitat is the focus of each individual habitat network and is essentially the area covered by existing PH.	Used to override the land use of the CROME cell if the centroid of the cell fell within the mapped area. Nutrient losses set to zero under the assumption that these will be negligible compared with agricultural losses.
Agricultural Risk Assessment Tool (ARAT)	ADAS	A previous project delivered by ADAS for Defra and the EA ¹¹ developed ARAT as an ArcGIS Add-in that takes as its input a risk matrix derived from the Farmscoper ¹² framework and one or more years of crop data from CROME. Farmscoper coefficients were extracted from the model database and worked up to provide baseline losses of N, P and sediment per hectare of each crop by Management Catchment, climate region and soil drainage class, which formed the risk matrix. Cells within the CROME map	Estimates of N, P and sediment loadings per cell for baseline land use Used in Water Quality scoring.

¹¹ Defra project SD1703 (Wilson et al., 2017)

¹² Farmscoper was developed by ADAS under Defra Project WQ0106 (Anthony et al. 2009), to allow the assessment of the cost and effectiveness of mitigation methods against multiple pollutants and multiple targets.

Dataset	Owner	Description	Usage
		were attributed with the relevant WMC, climate region and soil drainage class from the Farmscoper database (see below), as well as a category for distance to water to enable the application of a connectivity weighting.	
Farmscoper	ADAS	Faecal Indicator Organism loads from Farmscoper, disaggregated by river waterbody catchment, climate region and soil drainage class, were expressed as per hectare loadings based on farmed areas within the catchments. These per hectare loadings were then used to estimate FIO load per managed grassland CROME cell.	Estimates of FIO loadings per cell for baseline land use. Used in Water Quality scoring.
Digital Terrain Model	OS	Elevation of the land surface	Average slope was calculated per CROME cell. Used in Water Quality and Flooding scoring.
SEPARATE	ADAS	Source apportionment tool for pollutants that operates at a waterbody catchment scale.	<u>To be used in future development</u> to obtain apportionment of load to agricultural sources for each pollutant as a modifier in the Water Quality scoring.
UKCP09 gridded climate observations 1971-2000	MET Office	5km gridded data – monthly data summed to get annual average	Annual average days of heavy rain (≥10mm) calculated per CROME cell. Used in Flooding scoring.
River Waterbody Catchments Cycle 2	EA	River catchment boundaries for WFD Cycle 2	Size of river catchment that CROME cell is contained within. Used in Flooding scoring.
NSRI soils	LandIS (Cranfield)	1km gridded soil mapping for GB, providing dominant and associated soil series. Attribute data linked to spatial data on soil series.	Hydrology Of Soil Types (HOST) class obtained for each CROME cell. Used in Flooding scoring.
1:625K Hydrogeology	BGS	Classifies geologies into 'Rocks with essentially no groundwater'; 'Moderately productive aquifer'; or 'Highly productive aquifer'.	Used in Flooding scoring.
Risk of Flooding from	EA	The dataset shows the chance of flooding from rivers and/or the sea,	Each CROME cell attributed with the risk category into

Dataset	Owner	Description	Usage
Rivers and Sea ¹³		based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition.	which it had its centroid (or intersected for the low risk zone). Used in Flooding scoring.
Indicative Flood Risk Areas Communities at Risk by LFA	EA	Shapefile for Indicative Flood Risk Areas generated using the Environment Agency's Communities at Risk Approach. The Indicative Flood Risk Areas are primarily based on an aggregated 1km square grid Updated Flood Map for Surface Water (1 in 100 and 1000 annual probability rainfall), informally referred to as the "blue square map".	Each CROME cell upstream of a 'Community at Risk' flagged. Used in Flooding scoring.
Woodland Planting Opportunities (WWNP) in Floodplain	EA	Working With Natural Processes - estimate of locations where tree planting on the floodplain may be possible, and effective to attenuate flooding (areas in flood zone 2 subtracting areas of watercourses, peat, roads, rail and urban locations).	CROME cells that intersect these areas flagged. Used in Flooding scoring.
WWNP Runoff Attenuation Features 3.3% AEP	EA	Working With Natural Processes - based on the premise that areas of high flow accumulation in the Risk of Flooding from Surface Water maps are areas where the runoff hydrograph may be influence by temporary storage if designed correctly.	CROME cells that intersect these areas flagged. Used in Flooding scoring.

¹³ © Environment Agency copyright and/or database right 2018. All rights reserved. Some features of this map are based on digital spatial data from the Centre for Ecology & Hydrology, © NERC (CEH) © Crown copyright and database rights 2018 Ordnance Survey 100024198

Outputs

Swaledale - 030011

There is a high relative risk to water quality to the west of the study area (Figure A5-1). These areas drain an area of the Yorkshire Dales National Park and contribute to the River Ure and River Swale. There are some options in these areas for the restoration of moorland, but these only cover a small area.

The area to the north-west of the study area also have areas of relative high risk. High risk scores in this area are due to those areas of grassland, close to the watercourses. A significant proportion of these areas are covered by options – including permanent grassland with very low inputs, management of rough grazing for birds and restoration and maintenance of species-rich, semi-natural grassland – helping to reduce water quality risk in this area. Options further downstream relating to the restoration and maintenance of woodland and moorland help contribute to a lower quality risk in these areas.

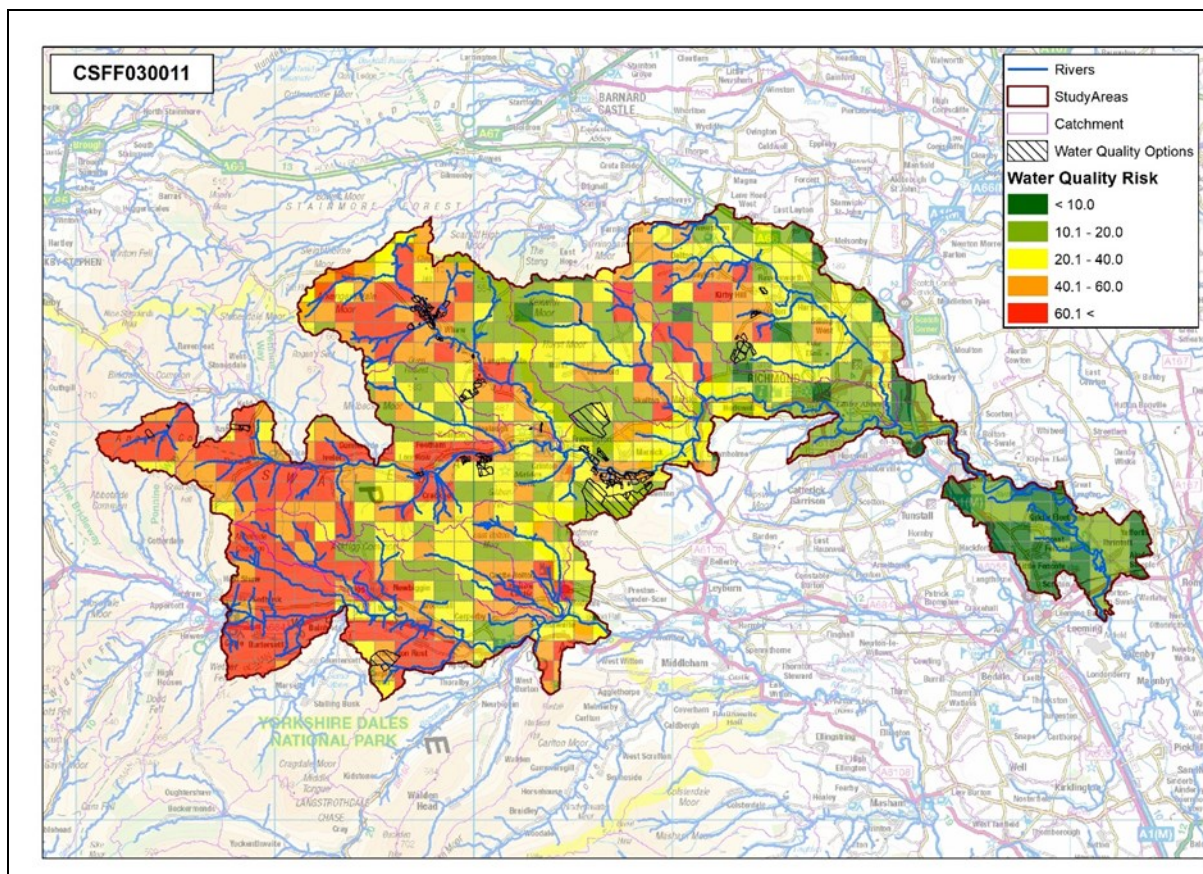


Figure A5-1 Map of water quality and location of water quality options in the CSFF030011 agreement study area

This study area includes significant areas of land that score highly for flood risk (Figure A5-2). These areas are in the west of the study area, within the Yorkshire Dales National Park. These are the catchment areas for the River Ure and River Swale. Options higher up in these catchments are related to the restoration of moorland, which will help to retain some of the water in these areas. Options in the valleys, such as those around Whaw (to the north-west of the study area) relate to the creation of temporary ponds and the restoration of woodland.

There are further areas of woodland maintenance and creation close to Fremington. These woodland options will help to slow the flow of water from further up in the catchments into the watercourses. Flood risk scores are lower in the east of the catchment, although there are some higher risk areas to the east of Richmond.

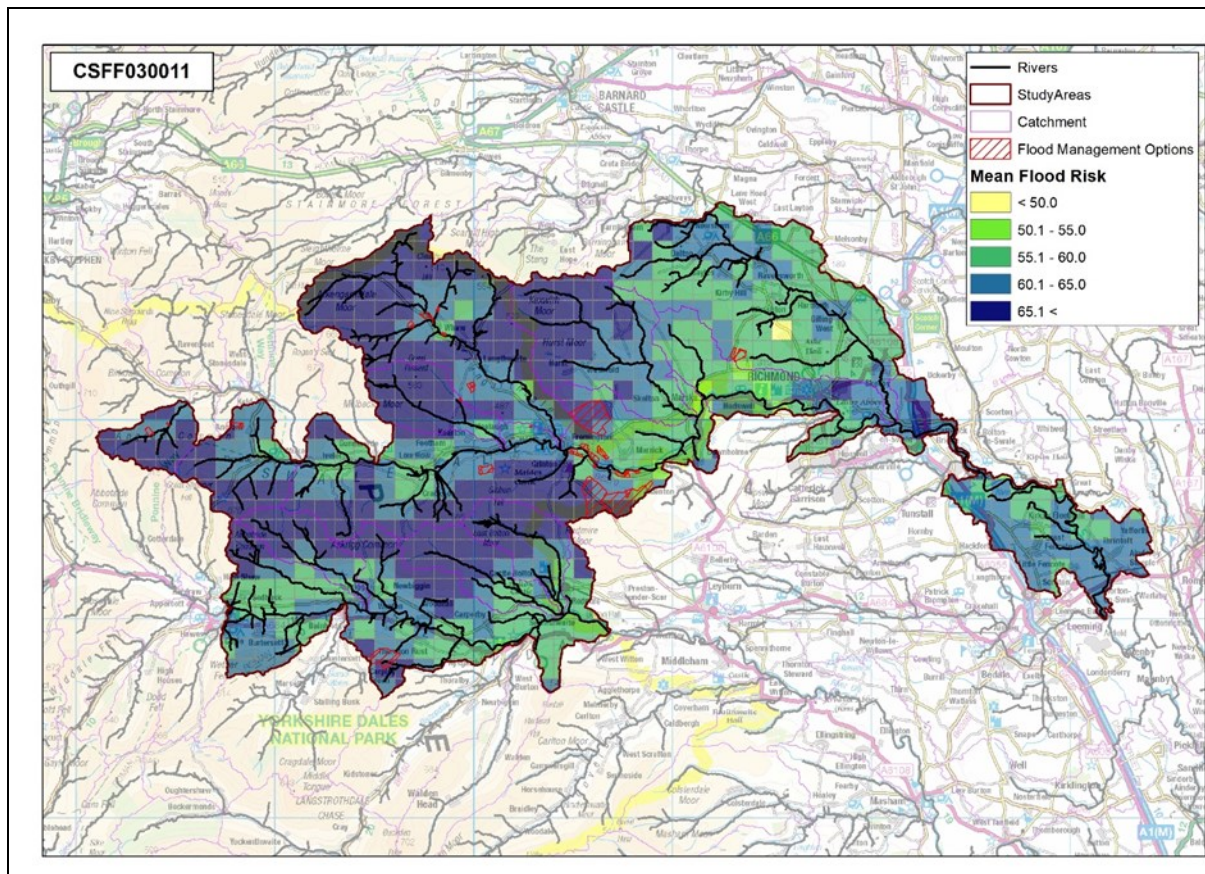


Figure A5-2 Map of flood risk and location of flood management options in the CSFF030011 agreement study area

Hope Valley Farmers – 050007

Highest risk areas for water quality (Figure A5-3) are those areas of land that are within catchments of the River Noe, a tributary to the River Derwent. High risk scores in this area are due to grassland areas close to water courses and/or on steeper areas of land. There are a number of water quality mitigating options within these areas, around Barber Booth and Thornhill, relating to low inputs on the land and the maintenance and restoration of species-rich, semi-natural grassland. Furthermore, an area of moorland restoration to the north will help limit water quality risk.

There are also areas of higher risk in the headwaters of the River Derwent and River Ashop in the north of the study area, however there are no water quality options within these areas. Further downstream around Aston and Heathersage there are further areas within options, the majority of which relate to low inputs on grassland, helping to reduce the risk to water quality in these areas.

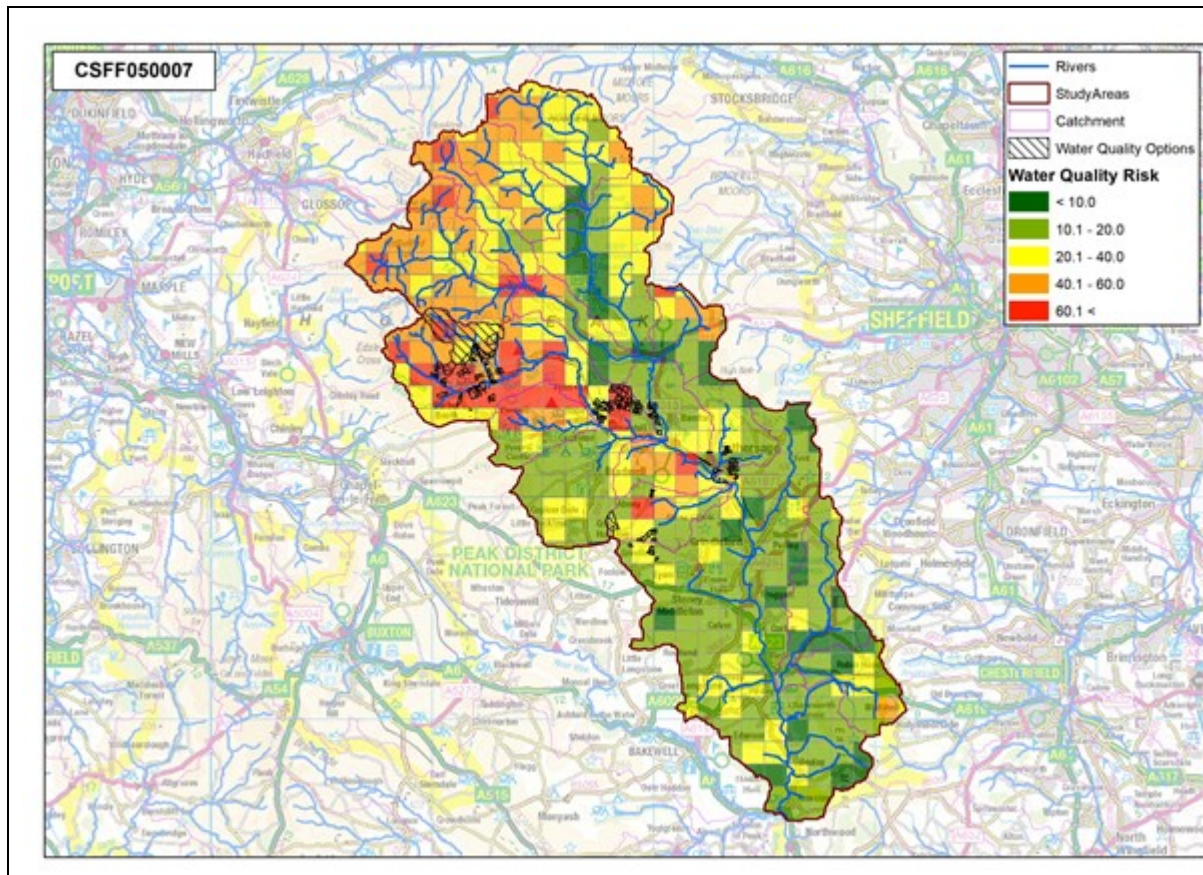


Figure A5-3 Map of water quality and location of water quality options in the CSFF050007 agreement study area

The study area covers a large area of the Peak District National Park (Figure A5-4). The high risk areas are to the north-west of the study area; in the headwaters of the River Derwent within the Peak District National Park. These are the higher areas of land will receive high rainfall and steep slopes will contribute to their high flood risk scores. Options in this area are to the west and include a large area for the restoration of moorland. Other options in this area include grip blocking (to help restore moorland and slow water flow) and the creation and maintenance of woodland.

Options for restoration of woodland and moorland, hedgerow planting and buffer strips are around Thornhill Hathersage. There is also an area of higher risk in the east of the catchment, around Barbrook Reservoir.

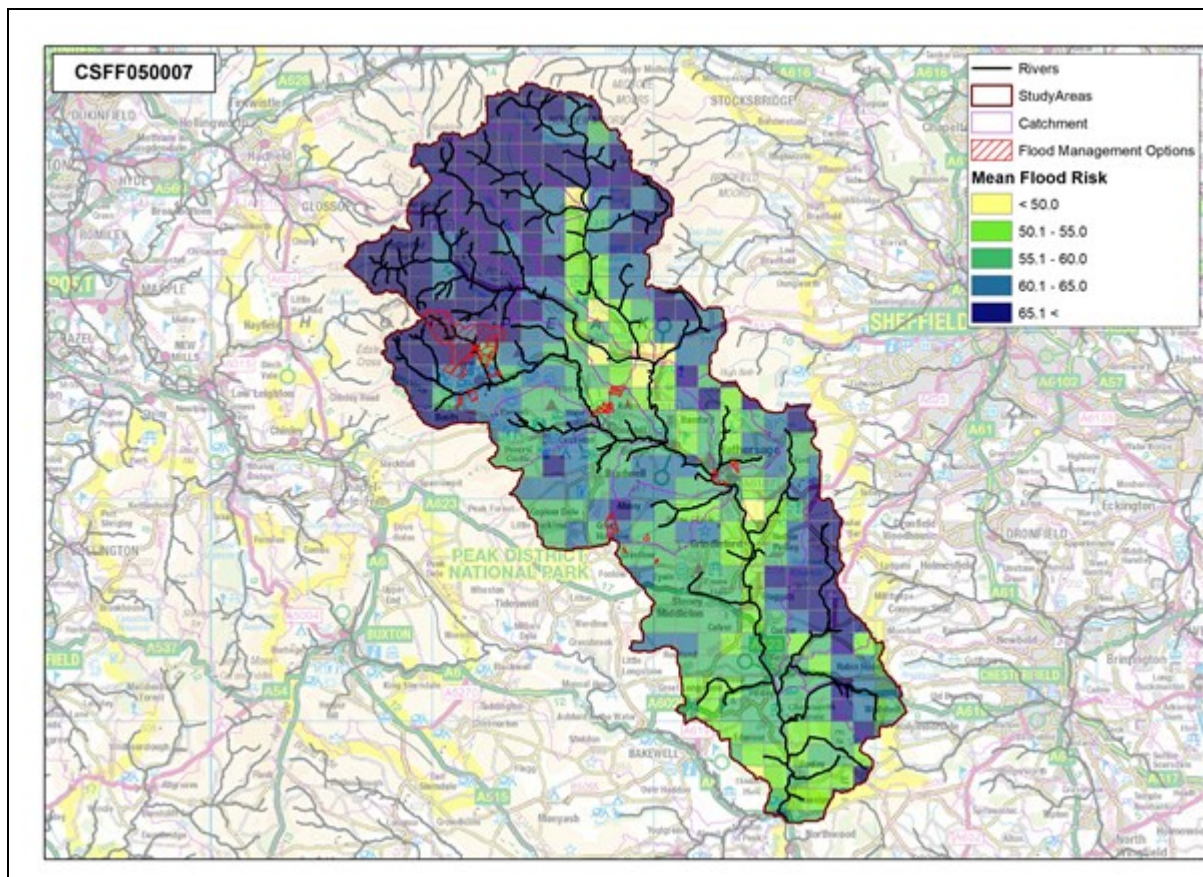


Figure A5-4 Map of flood risk and location of flood management options in the CSFF050007 agreement study area

Churnet Valley Farmers - 060009

Water quality options (Figure A5-5) for this agreement study area are around Froghall, close the River Churnet, and to the south of the study area to the south of Alton. Those options to the south cover areas of relatively high risk. The area of highest risk in the study area are in the north. Options in this area contribute to reducing water quality risk through winter livestock removal next to streams, rivers and lakes, 6m buffer strips on intensive grassland next to a watercourse and hedgerow restoration.

A range of option types help to mitigate water quality risk in the area around Froghall, including low input grassland. Options such as the maintenance and restoration of species-rich, semi-natural grassland and the maintenance and restoration of woodland in this area may also help mitigate the high risk in the area to the north-east of these.

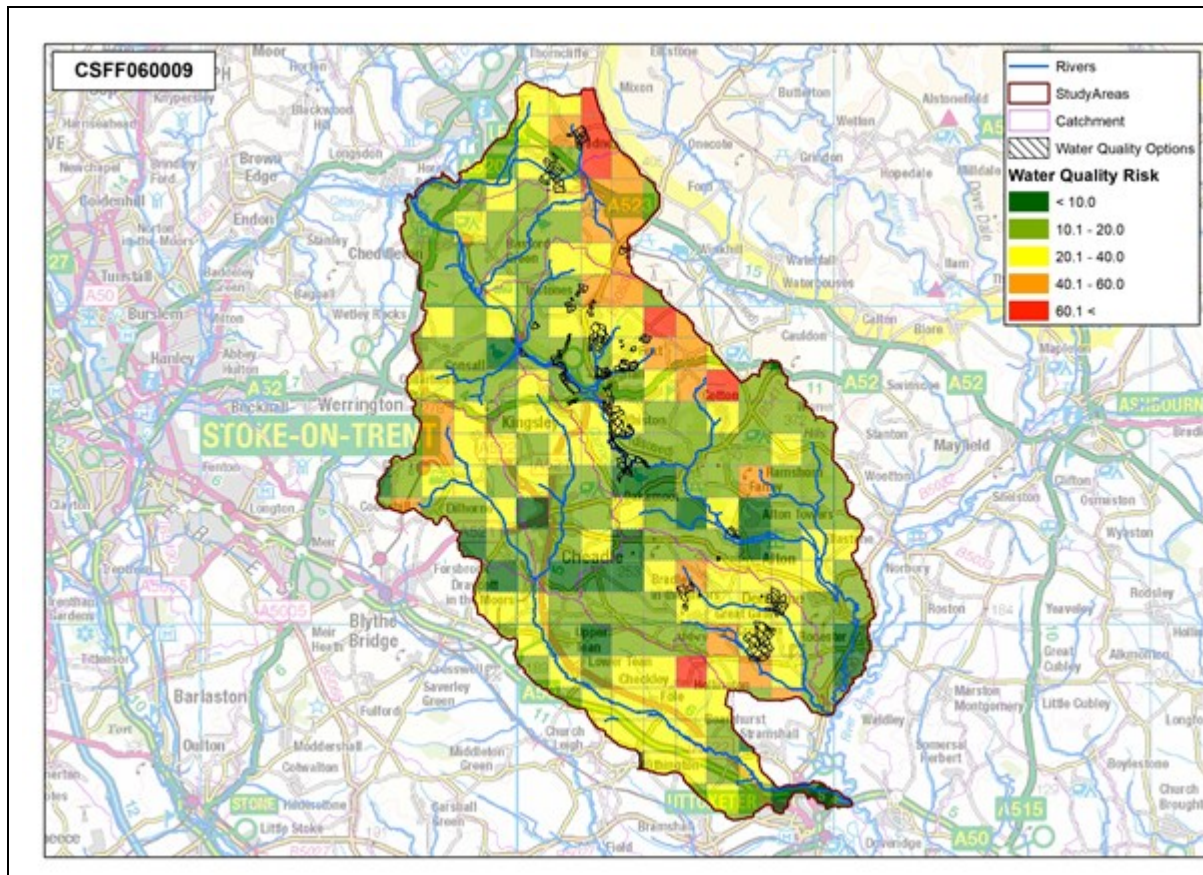


Figure A5-5 Map of water quality and location of water quality options in the CSFF060009 agreement study area

The highest flood risk areas (Figure A5-6) follow the River Tean in the south-west, with the highest risk areas around Cheadle and Uttoxeter. There is also high risk areas close to the River Dove to the east of the catchment. Upstream of these higher risk score areas in the south-east are a few options related to hedgerow management, buffer strips and the protection of in-field trees on grassland.

Most options are alongside the River Churnet and its tributaries. A number of these options are related to the restoration or management of woodland, reducing the risk to flooding in the area. Options in the north of the study area include the management of wet grassland for breeding waders; creating environments that will hold more runoff waters.

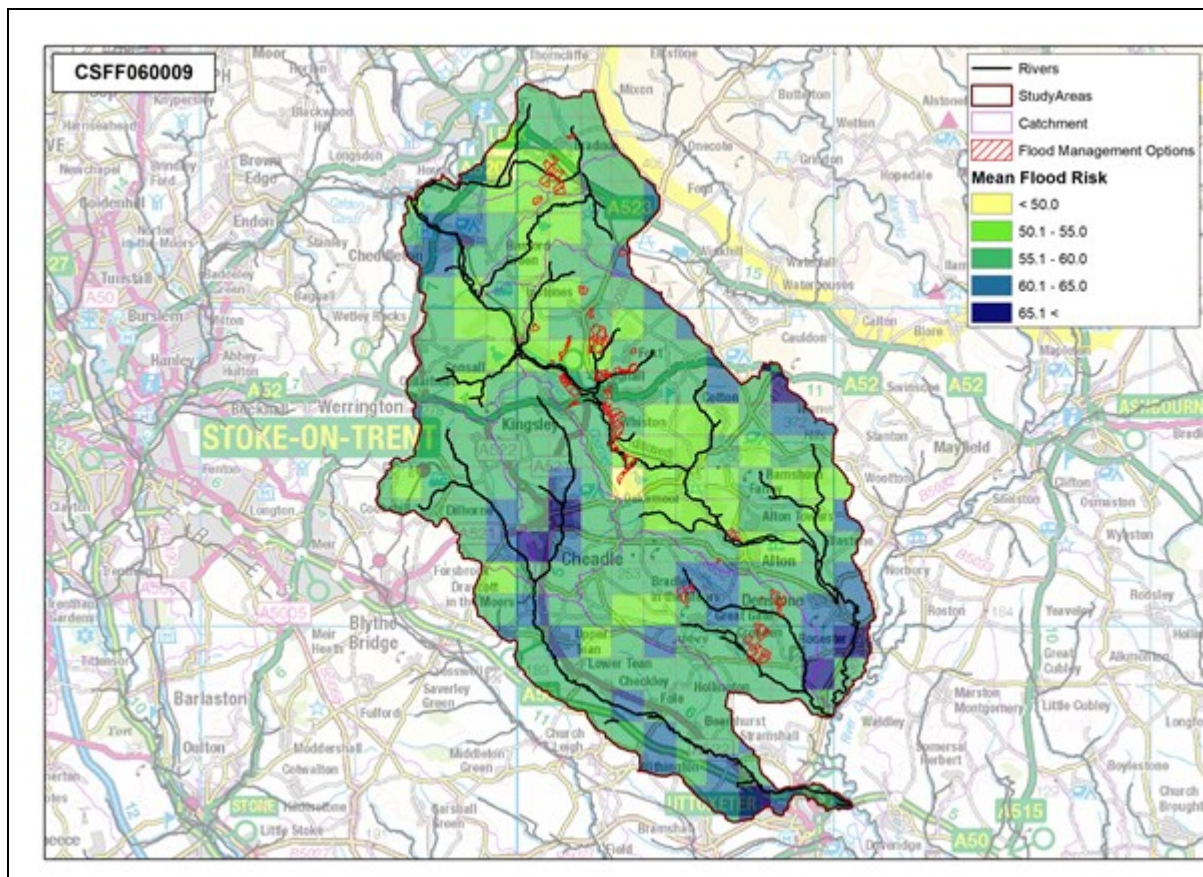


Figure A5-6 Map of flood risk and location of flood management options in the CSFF060009 agreement study area

Hereford Meadows – 070012

The options within this agreement are widely dispersed across a large area. There is a large area of high risk for water quality to the west of the study area (Figure A5-7) for those areas of land contributing to tributaries of the River Monnow, including Olchon Brook, Escley Brook and Dulas Brook. There are a few options within these areas of high risk. The options are in most cases close to the watercourse and include the restoration of woodland and species-rich, semi-natural grassland. These practices will also mitigate risks from further uphill.

Another area of relatively high risk is to north-east of the catchment. The options in this area cover the catchment which flows east to the River Teme. Options here include buffer strips on cultivated land, low inputs to grassland, and hedgerow restoration. These will mean that the water quality risk from these areas will likely be lower than that modelled. Land in this area also contributes to tributaries of the River Frome which flow south to the River Wye. Many of the other options within this agreement also cover areas of relatively high water quality risk spread across the study area. Some of these include concrete yard renewal, which improves how existing outdoor yards separate clean and dirty water, reducing the risk of runoff and water pollution.

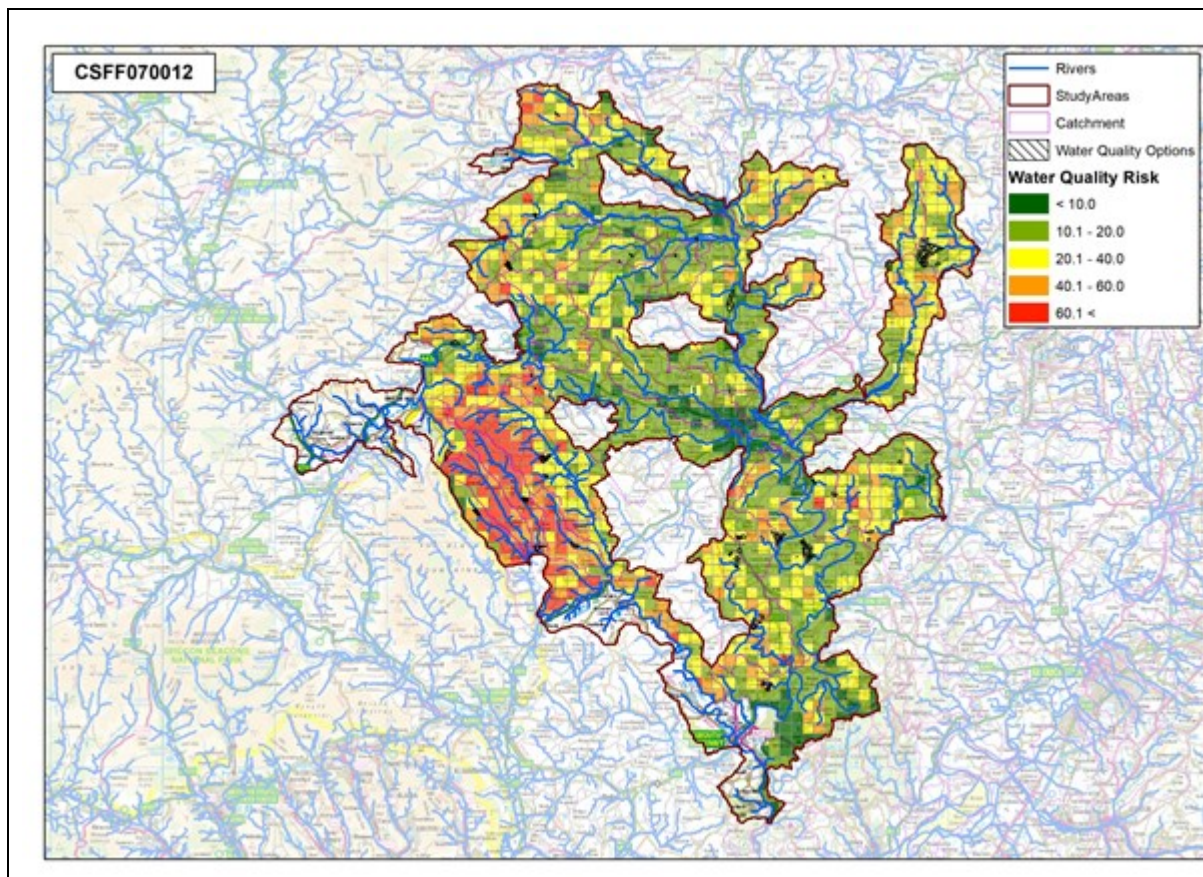


Figure A5-7 Map of water quality and location of water quality options in the CSFF070012 agreement study area

Areas of higher risk (Figure A5-8) across this larger study area are around Hereford and Leominster, both close to the River Lugg, near Bromyard on the River Frome, and at Ross-on-Wye close to the River Wye. There are a number of options in some of the higher risk areas along the River Wye and its tributaries in the east of the study area. These options are mainly related to the management of hedgerows and the protection of in-field trees on arable land.

There is a lower flood risk for the catchment areas of the River Monnow. There are a number of options for tree management in these catchments. There are also a number of options across the study area for the use of buffer strips, such as in the River Frome catchment in the north-east, and to the south of Kington.

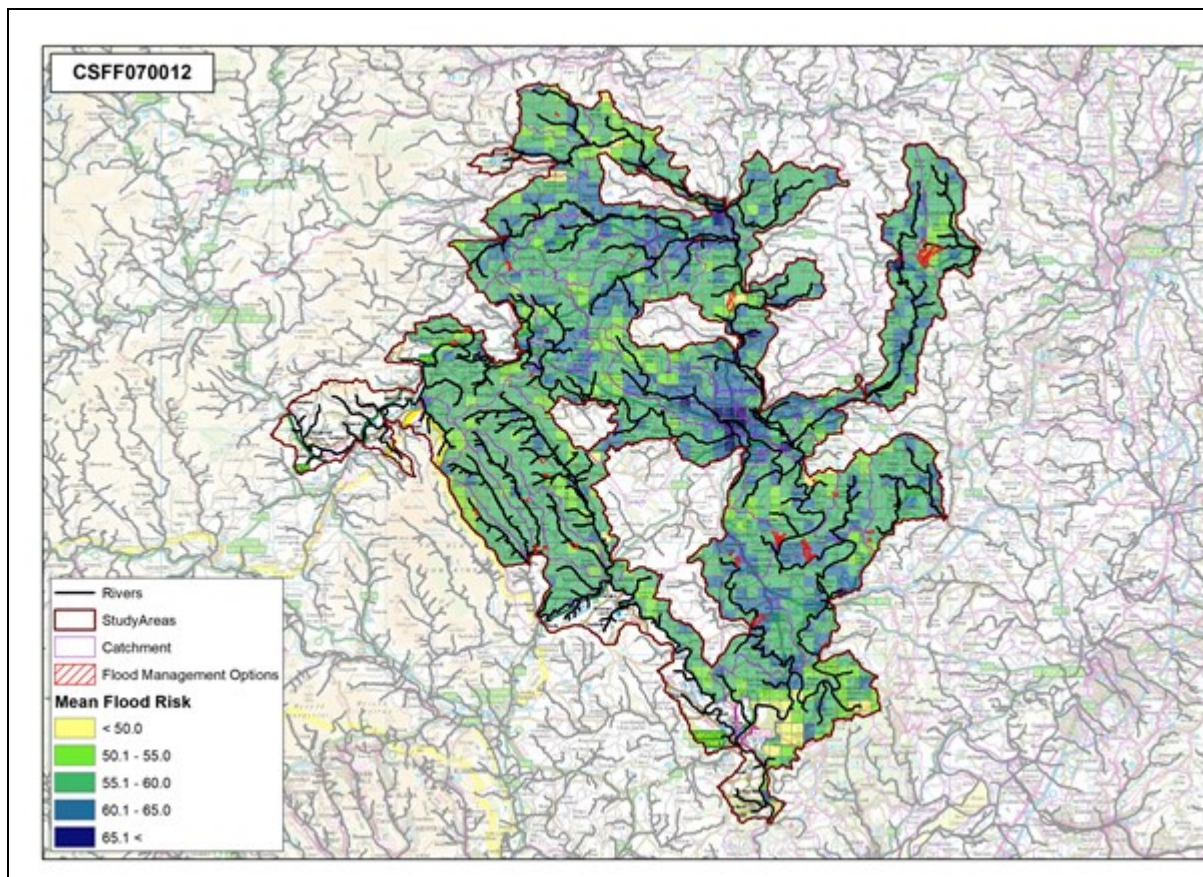


Figure A5-8 Map of flood risk and location of flood management options in the CSFF070012 agreement study area

West Cambs 100s-Bourn Brook - 080001

Most of the options within this study area (Figure A5-9) are within the catchment of Bourn Brook, a tributary of the River Cam to the east. Risk to water quality within this area is of low to medium risk. The study area does not include any areas of high risk (with a score greater than 40) for water quality. There are some areas of medium risk in the headwaters of tributaries flowing into the River Great Ouse towards the north of the study area.

One of the option types in the study area is organic management. This means that no synthetic nitrogen fertilisers, pesticides or any herbicides are applied to the land and applications of nitrogen sourced from animal manures are limited. Furthermore, multiple options for buffer strips on cultivated land help to reduce the likelihood of any inputs reaching a watercourse.

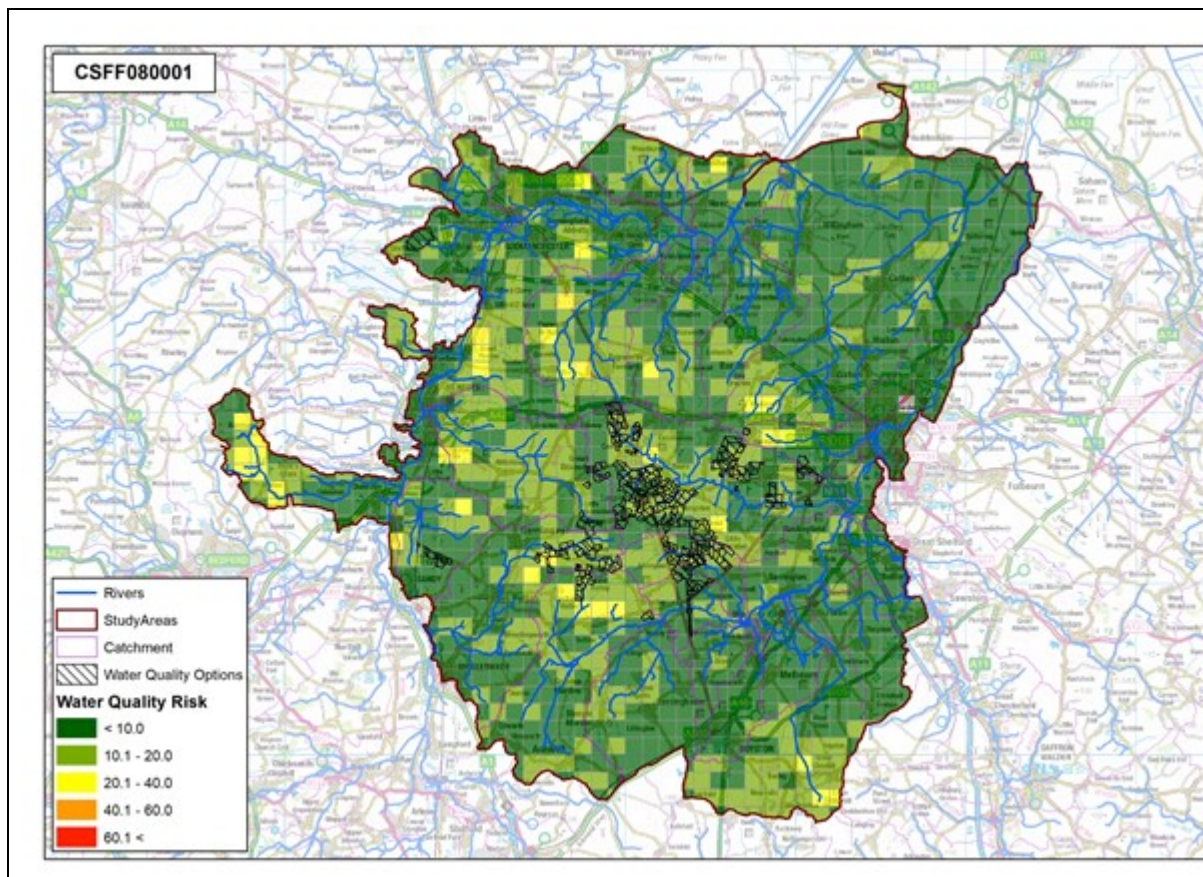


Figure A5-9 Map of water quality and location of water quality options in the CSFF080001 agreement study area

There are a number of 'hot-spot' areas for flood risk in this study area (Figure A5-10). These are around the urban areas of Cambridge, St Ives, Huntingdon, St Neots, Sandy, Biggleswade and Royston. Options close to Huntingdon are for pond restoration and woodland improvement.

A number of options are within the catchments of the River Cam or Bourn Brook, which have medium to high flood risk scores and flow to the high risk area around Cambridge. A number of these options are for buffer strips on cultivated land, which will go some way to reducing water runoff, as well as options hedgerow management and woodland restoration.

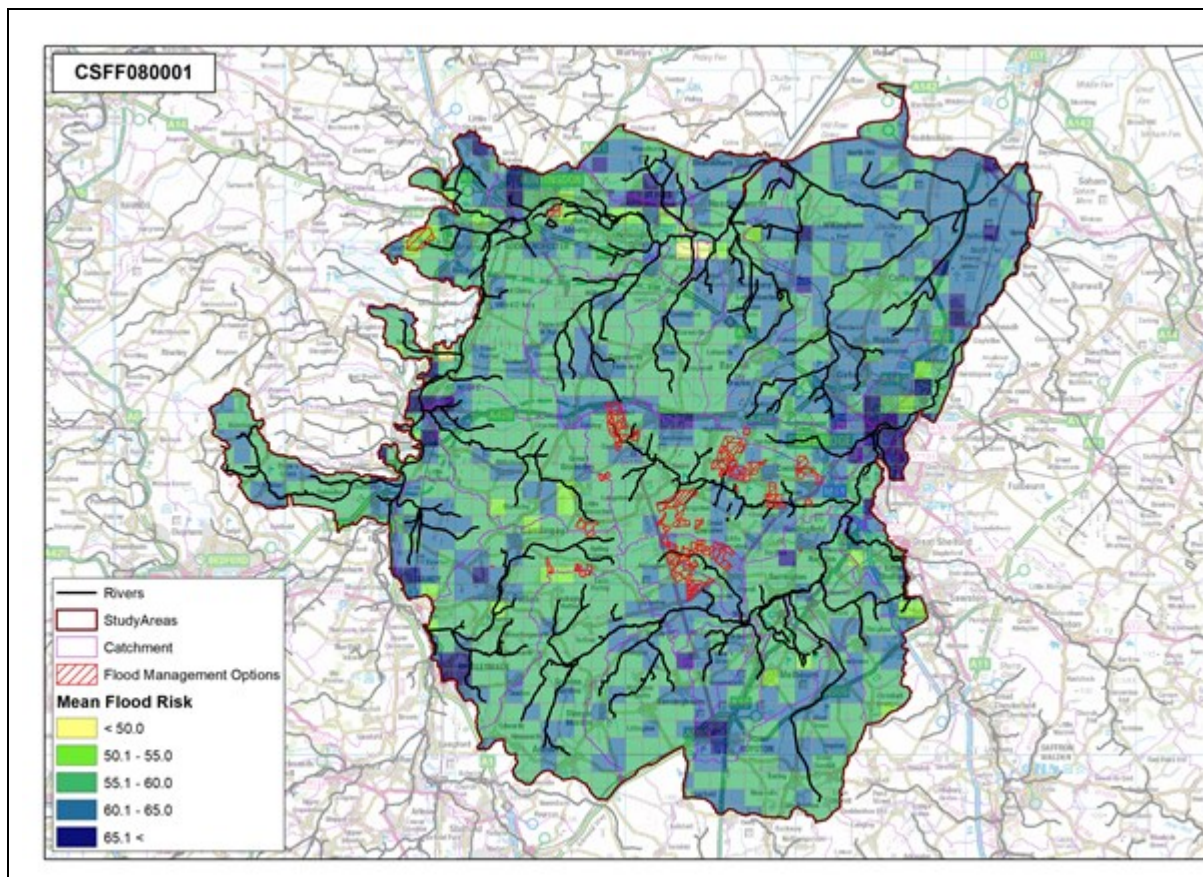


Figure A5-10 Map of flood risk and location of flood management options in the CSFF080001 agreement study area

Thames Farmers' Conservation Group - 100002

This study area covers a section of the Thames (between Lechlade-on-Thames and Abingdon) and the catchments for its tributaries. There are no significantly high risk areas in the study area (Figure A5-11). Areas of medium risk are close to Oxford, and to the north of Eynsham.

Most of the flood management option areas are to the west of the study area, where there is a relatively low water quality risk. A number of these options are under organic management, limiting the inputs to the area. Buffer strips in this area also limit the pollution to the watercourses. Options to the north of the study area also include low inputs to grasslands and buffer strips on cultivated land.

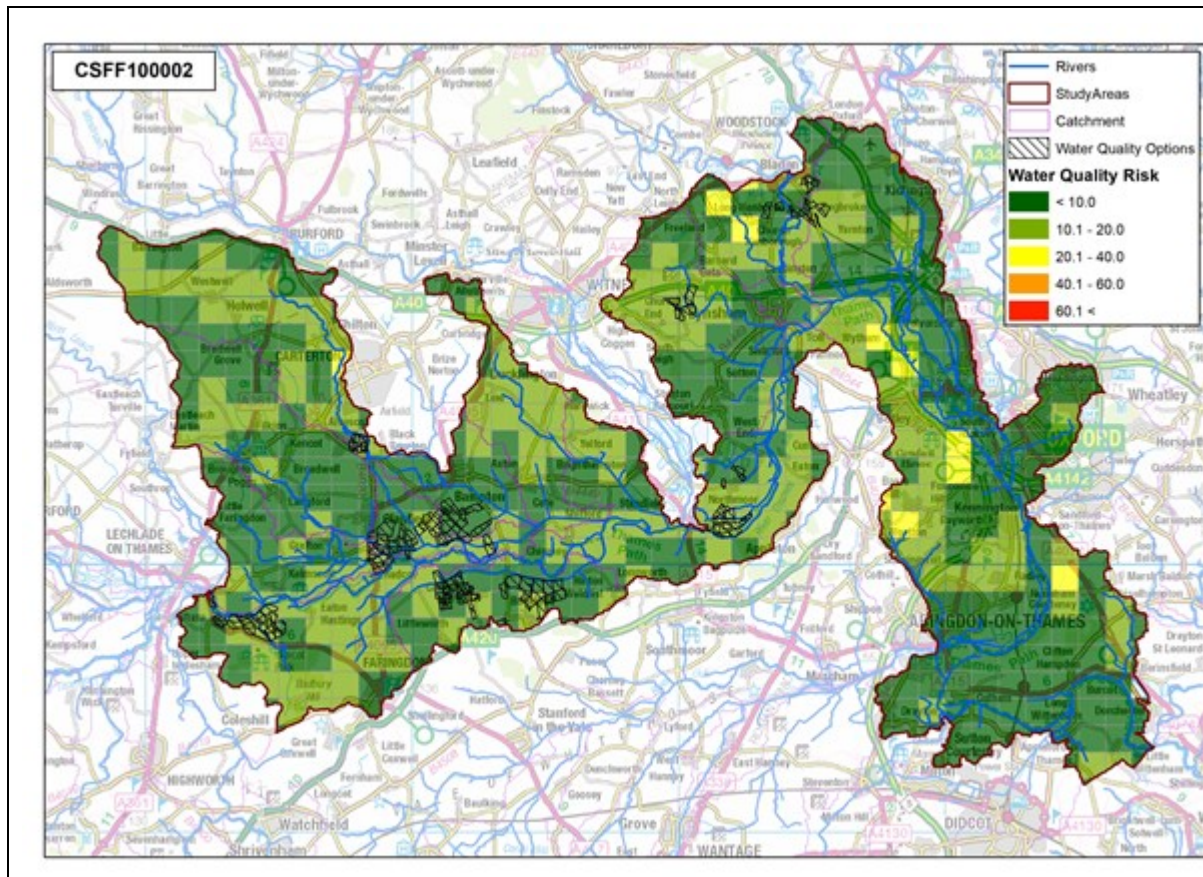


Figure A5-11 Map of water quality and location of water quality options in the CSFF100002 agreement study area

High flood risk areas in the study area are those urban areas including Abingdon, Oxford and Eynsham (Figure A5-12). There are relatively high risk scores throughout the study area. Many options are on areas of higher risk, such as those close to Clanfield and Radcot. These options are largely for the management of hedgerows and buffer strips, however also include options for pond creation and ditch management.

To the south west of the study area, options near Buscot include the maintenance of wet grassland for wintering waders and wildfowl, creating environments that could hold more surface water, and buffer strips.

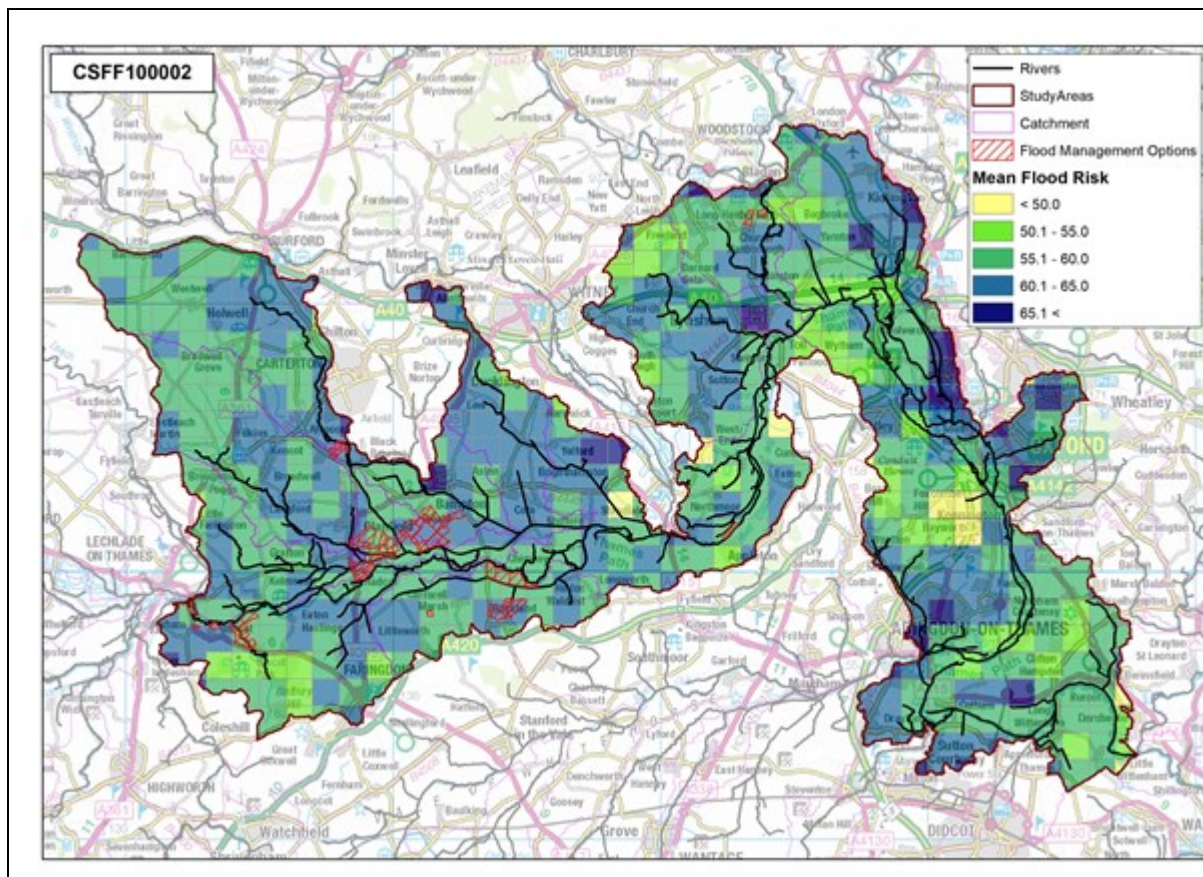


Figure A5-12 Map of flood risk and location of flood management options in the CSFF100002 agreement study area

East Devon Farmers Group – 120003

The study area covers a number of river catchments which flow into the English Channel, between Sidmouth and Lyme Regis. There is a medium to high water quality risk for areas of the catchments that are tributaries to the River Axe (Figure A5-13). High risk areas include the headwaters of the River Coly near Church Green. There are a number of water quality options within this area. Low input management on grassland (and arable reversion to grassland with low fertiliser inputs) reduce risk to water quality in these high risk areas. The planting of new hedges and removing small areas from management further reduces the risk to water quality.

There are a number of options around Vicarage to the south of the study area. The catchment for the River Sid, to the west of the study area, also includes areas of relatively high risk. A number of farms in these areas are within an organic management option, reducing the inputs on the land.

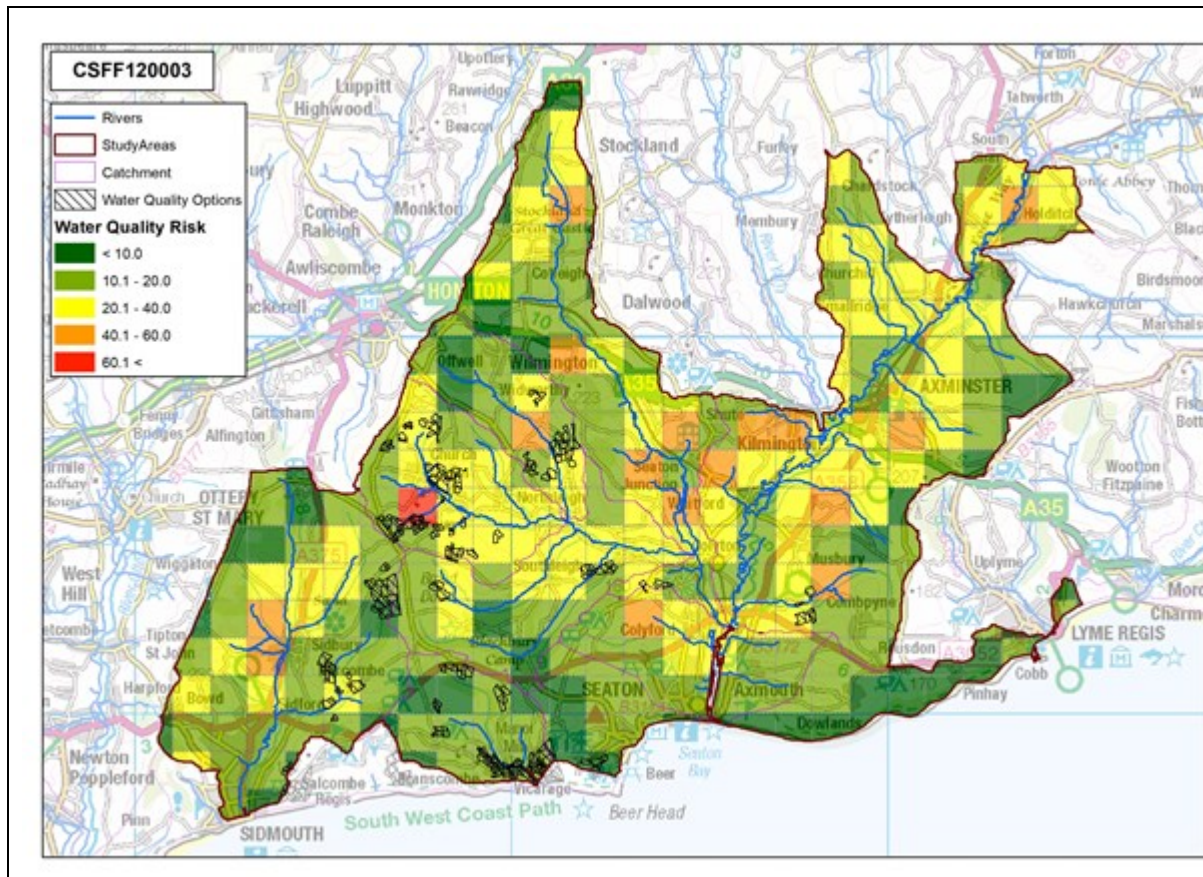


Figure A5-13 Map of water quality and location of water quality options in the CSFF120003 agreement study area

The study area has lower flood risk scores compared with some of the other study areas (Figure A5-14). The high flood risk score areas are those areas following the River Axe, with areas of high risk close to Seaton. Options that are within the catchment of the River Axe are largely to the west of the study area. The maintenance of woodland options in these areas will contribute to the lower flood risk scores in this area. Other options in these catchments helping to reduce flood risk include hedgerow restoration and earth bank creation and restoration.

There are also high risk score areas around Sidmouth, in the south-west. Options within this catchment which could help reduce flood risk include buffer strips, hedgerow restoration and the maintenance of woodland.

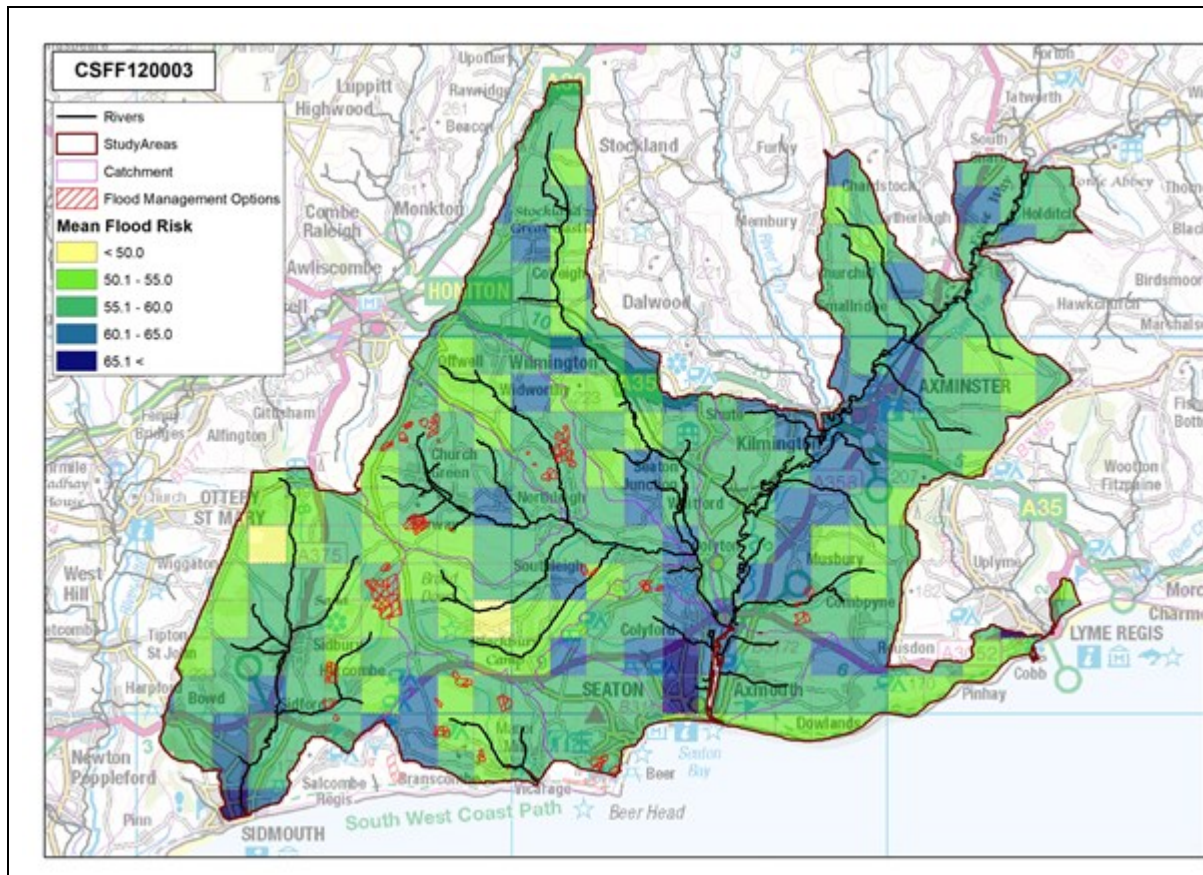


Figure A5-14 Map of flood risk and location of flood management options in the CSFF120003 agreement study area

Selborne Landscape Partnership - 130001

Most of the study area is of relatively low risk for water quality (Figure A5-15). The highest risk area is to the south-east of Alton, and the area contributing to the River Wey. A significant proportion of this medium risk area is covered by option land. A number of these options are for buffer strips on cultivated land and hedgerow restoration, reducing the likelihood of any pollution reaching the watercourses.

Water quality options are also found to the south of this catchment, as well as within the River Rother catchment, flowing south. A number of these options are for woodland restoration and improvement, perhaps contributing to the lower risk scores in these areas.

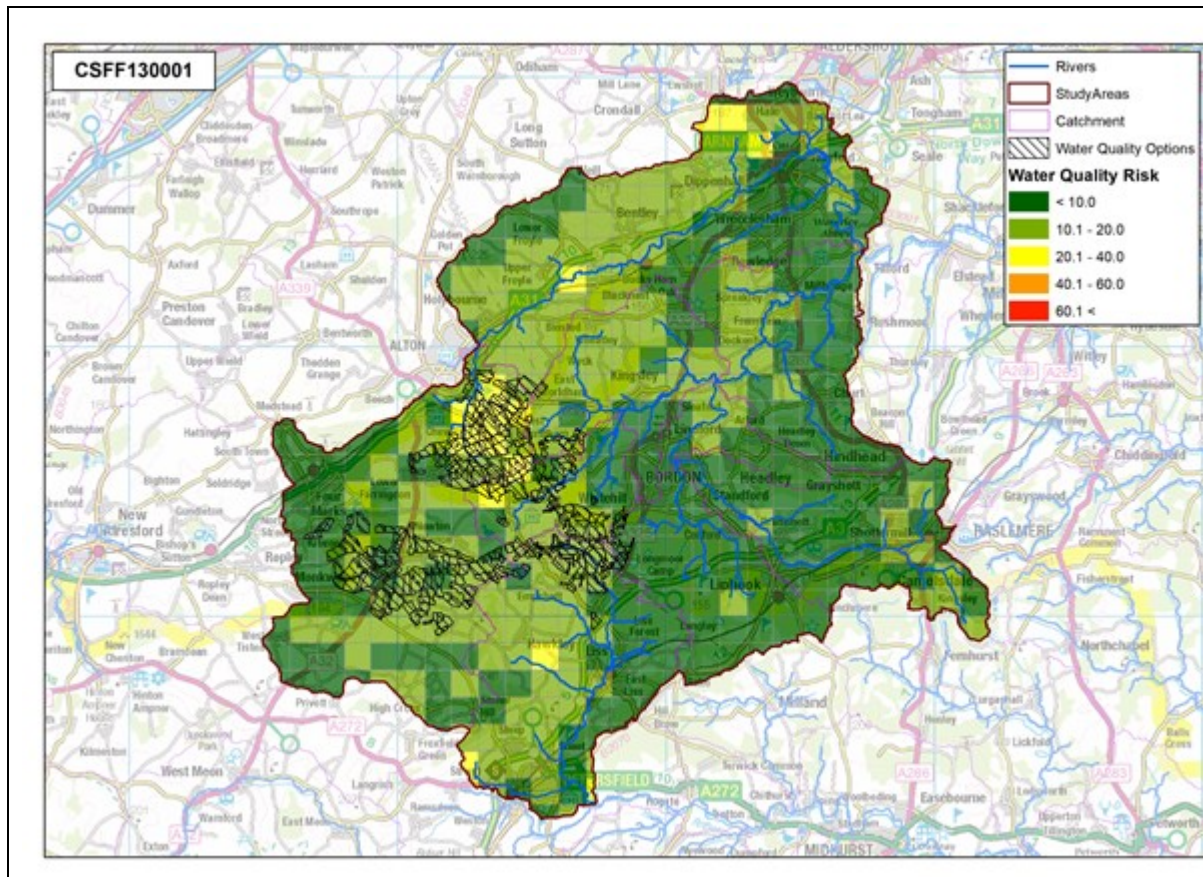


Figure A5-15 Map of water quality and location of water quality options in the CSFF130001 agreement study area

Higher flood risk scores in this study area are in the north-west and centre (Figure A5-16). A number of options relating to flood management cover these areas of high risk. These include management options that will not have been included in the risk score calculations, such as buffer strips and the management of hedgerows. Some of the lower risk scoring areas include options for the improvement of woodland.

Other areas of higher risk, not covered by option areas are close to Bordon and Kingsley, and along the River Wey. The south-eastern part of the study area has lower flood risk scores.

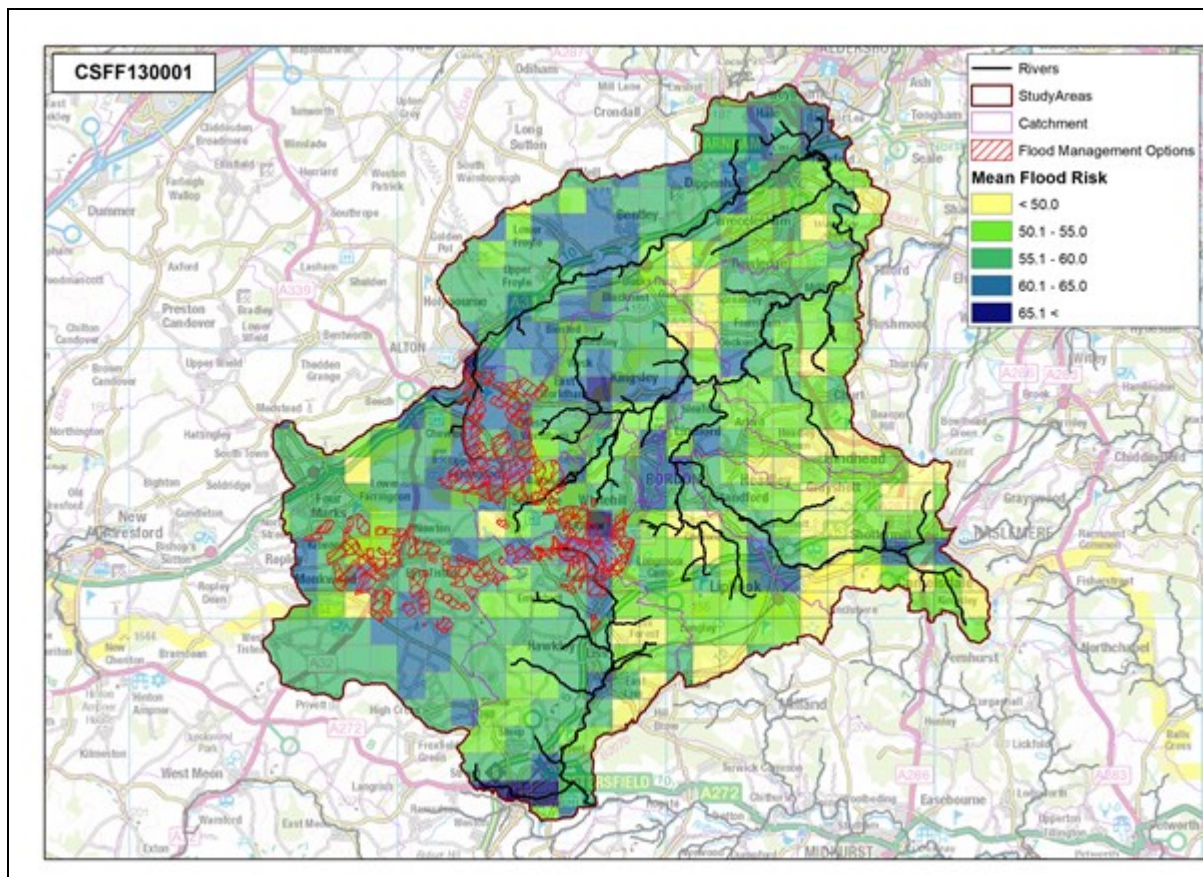


Figure A5-16 Map of flood risk and location of flood management options in the CSFF130001 agreement study area

Arun to Adur Farmers Group – 140002

This study area covers a portion of the South Downs. The highest risk areas of the study area are found along the two main rivers in the study area; The River Arun in the west and the River Adur to the east (Figure A5-17). Options are found close to the River Arun, including in some of the higher water quality risk areas, and across parts of the South Downs. A number of woodland improvement options in this area mean that these areas of land are helping to mitigate any water quality risk.

The options to the east of the catchment are related to lowering the inputs to the land, either through the restoration of species-rich, semi-natural grassland or low inputs to permanent grassland. Options for buffer strips on cultivated land also help to reduce the risk from any inputs that are applied in these areas.

An area of medium risk is to the west of the study area to the west of Henfield. There are no water quality options in these areas.

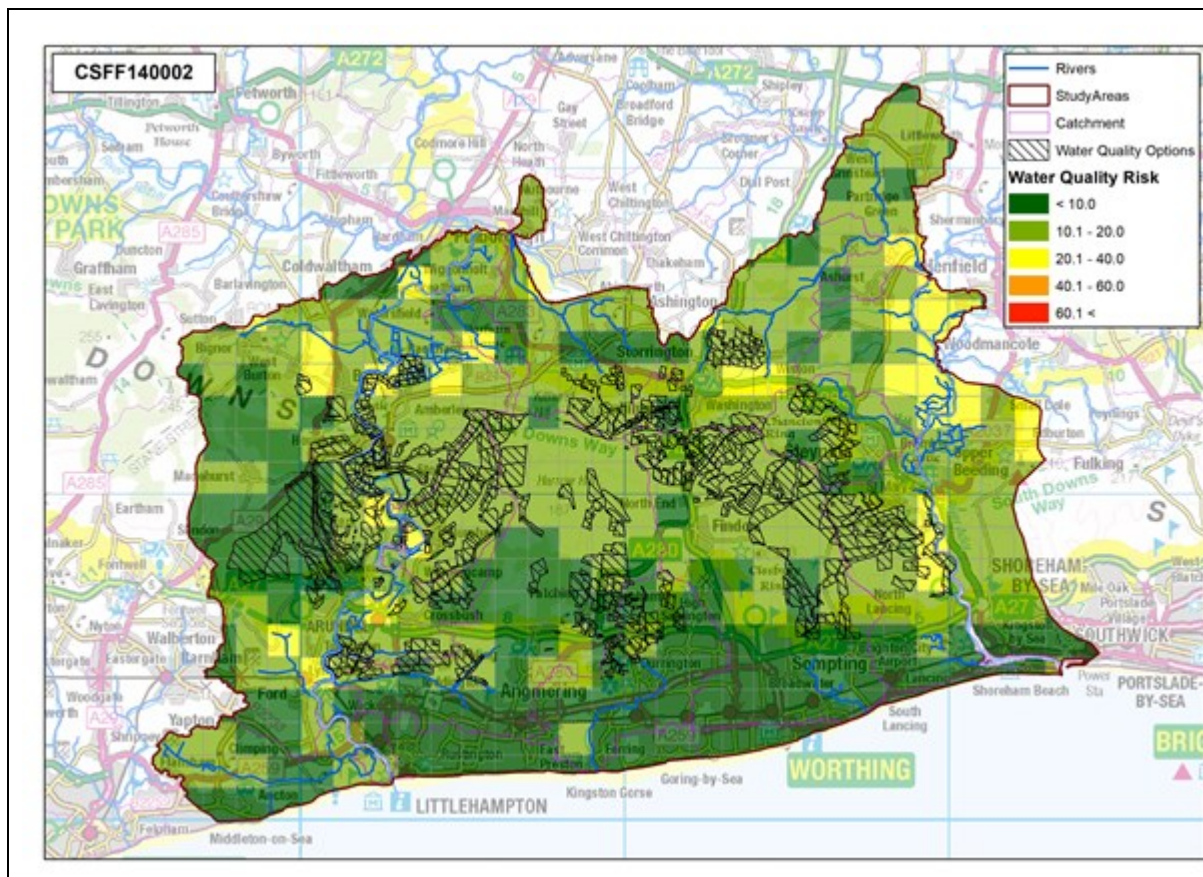


Figure A5-17 Map of water quality and location of water quality options in the CSFF140002 agreement study area

This study area has a significant area high flood risk scores to the south (Figure A5-18). This is likely due to the risk of flooding from the sea, and the expanse of urban area in this part of the study area. Flood risk scores are lower in the far west of the study area. Options in this low risk area are for the improvement of woodland, helping to keep the flood risk score low in this area. A mix of management options exist along the River Arun to the west of the study area. These include the management of wet grassland for breeding waders, the management and restoration of ditches, and the management of fen. Options further from the River Arun, to the west include unharvested cereal headland, creating rougher areas of land which will help to slow runoff.

Options relating to flood management cover a number of areas with higher flood risk scores across the study area. These mostly consist of buffer strips and hedgerow management. Options for the maintenance of woodland and protection of in-field trees and largely in areas of lower risk.

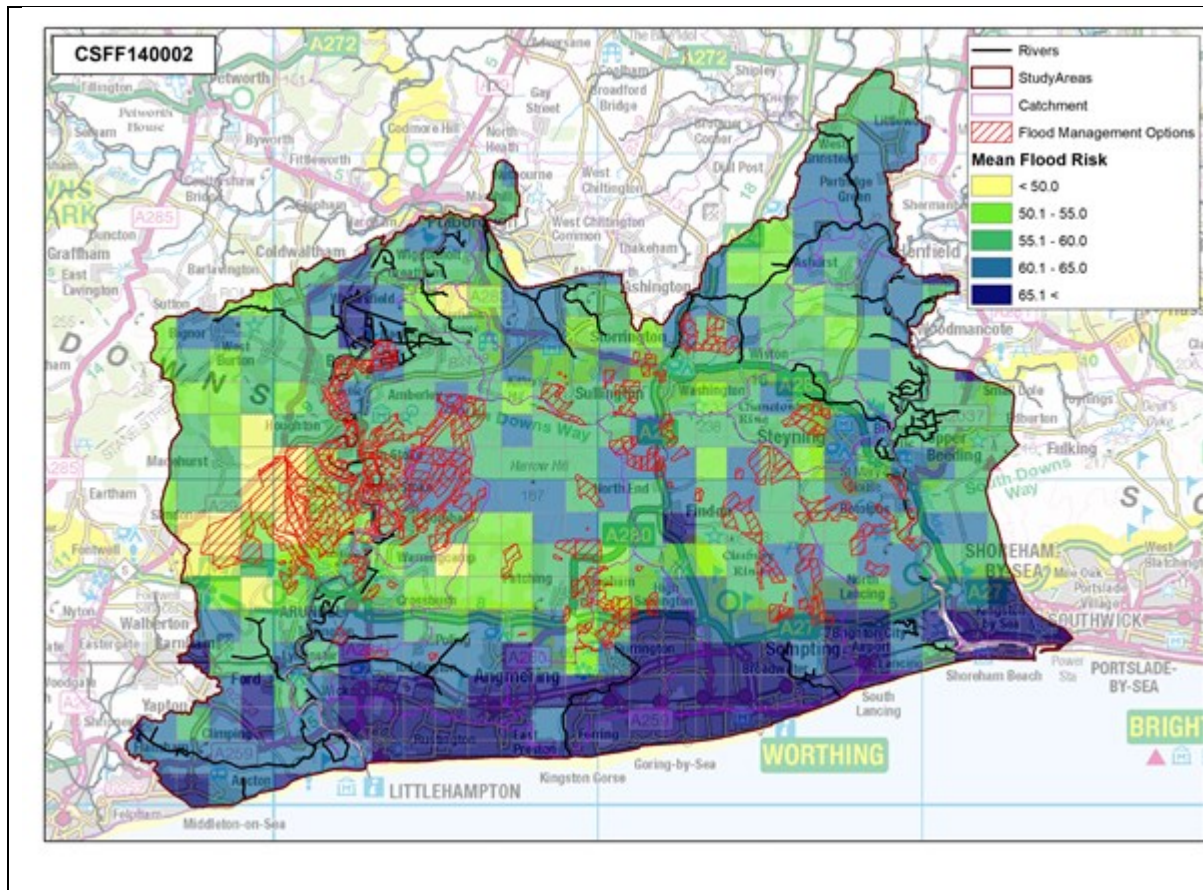


Figure A5-18 Map of flood risk and location of flood management options in the CSFF140002 agreement study area

APPENDIX 6 – FACILITATOR QUESTIONNAIRE: ANALYSIS OF INDIVIDUAL QUESTIONS

Question 3. Was your group pre-existing (for example, Nature Improvement Area) before the Facilitation Fund?

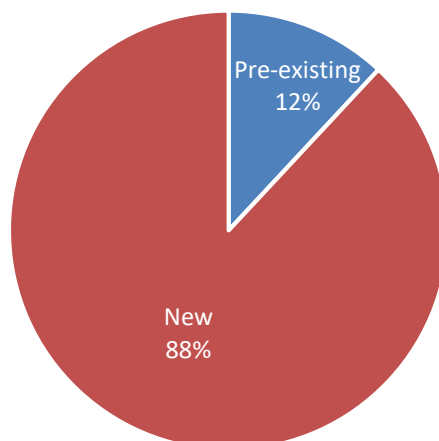


Figure A6-1 Proportion of groups which were newly formed or pre-dated the CSFF(n=67)

The majority of groups were not pre-existing and were specifically formed for the Facilitation Fund. Groups that were specifically formed indicated that some activity had been ongoing in the area for a period of time before the Facilitation Fund or that they had formed in response to flooding. Responses also indicated that some new groups were created from an existing informal core of farmers, suggesting that some working or social relationships existed before the Facilitation Fund and contributed to the subsequent development of the group. The majority of facilitators who answered 'No' did not provide an explanation and generalisations are unable to be made due to this.

All of the groups that were pre-existing provided an explanation to this question. The majority of groups were established from Nature Improvement Area groups, with an additional group being established from an existing community group and one existing as a Farmer Cluster. One group was also formed from a group of farmers who had commissioned surveys of the area and had meetings with conservation and farming groups.

Question 4. Which of the following best describes the initial group formation?

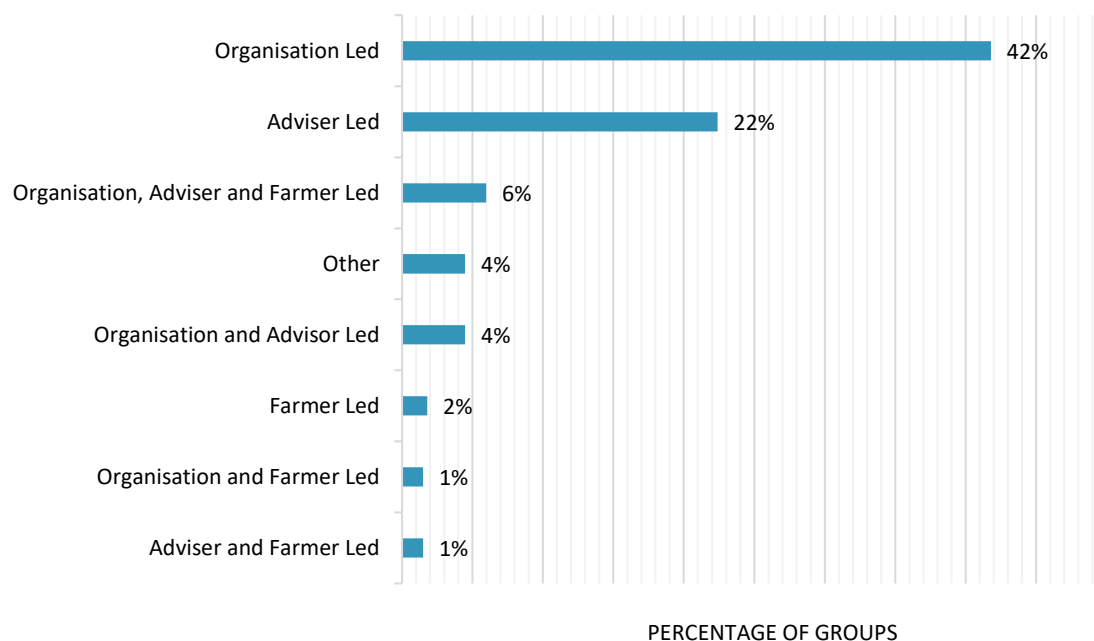


Figure A6-2 Descriptions of the initial group formations (n=67)

Question 6. How were the group members brought together?

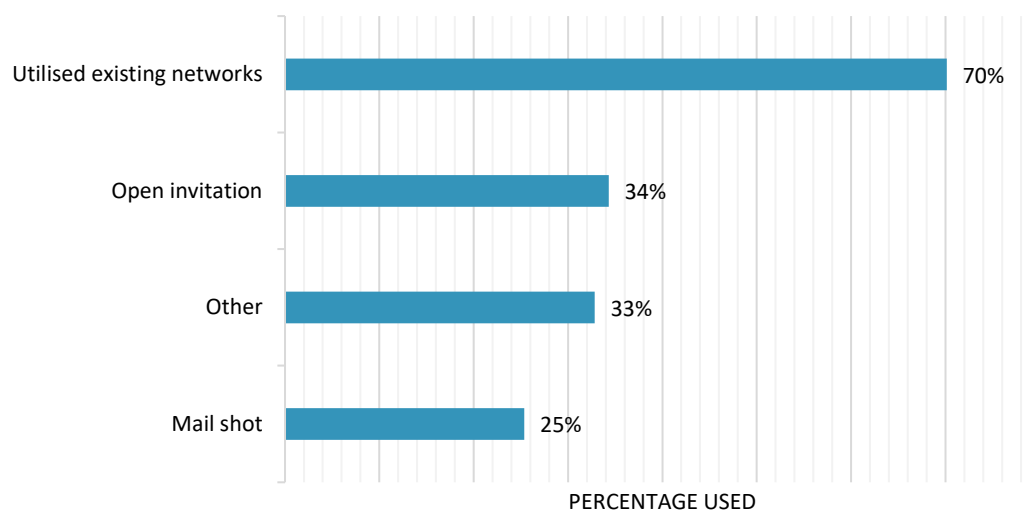


Figure A6-3 Method of group formation (n=67)

Participants were able to select more than one option.

The utilisation of professional, personal and local networks was the most common method of bringing people together in order to form a Facilitation Fund Group.

The 'Other' category included a variety of methods of group formation such as: talking to tenant farmers within estates; writing advertising content with partner organisations; holding local meetings with open invitations to set out objectives; targeted strategic farm visits or calls to farmers with specific habitats or within a specific location; and through word of mouth within farmer networks.

Question 7. What were the initial priorities and why were they chosen?

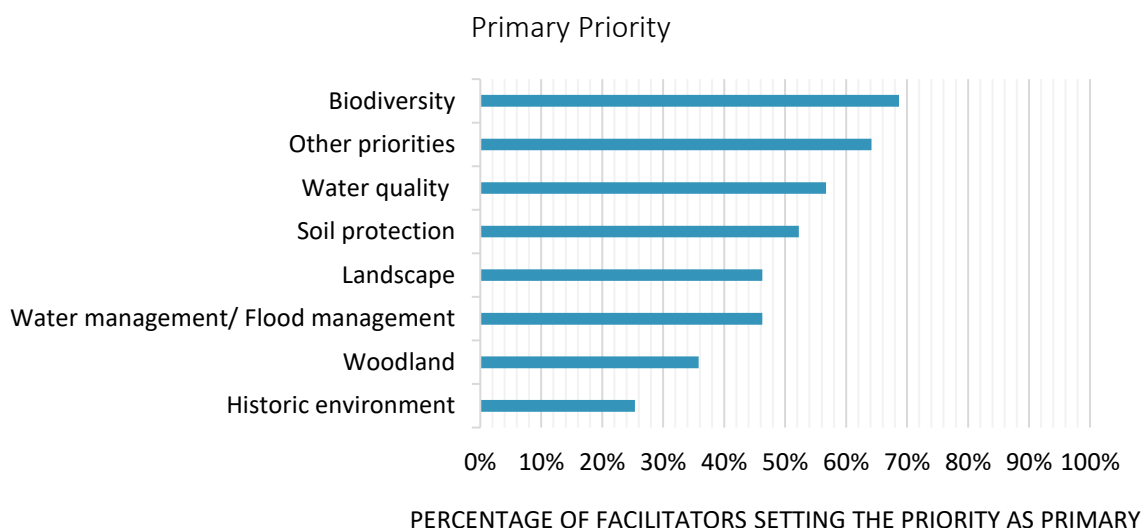


Figure A6-4 Primary group priorities (n=67)

Biodiversity is a priority for virtually all groups: it is the primary priority for 68.5% of facilitator groups and a secondary priority for a further 30%.

Biodiversity was typically chosen as a primary priority due to the presence of priority habitats and species present in the area, such as bats, birds and butterflies. Some groups prioritised biodiversity as a response to an issue or threat occurring in the area, such as declining species. External organisations and group members had an influence on the group priorities. Some groups prioritised biodiversity to complement other work occurring in the catchment and some members identified biodiversity as a priority. Facilitators highlighted the multiple benefits that the priority of biodiversity will help to achieve, particularly linked to water catchment issues.

Woodland is the most common secondary priority reported by 54% of survey responses. Explanations provided by facilitators were typically focused around the presence of ancient woodland in the area, the links that improving woodland in their area has to other priorities, such as Natural Flood Management and that there is an opportunity to improve the woodland in their area.

There is less variance in the secondary priorities suggesting that all of the priorities are being taken up by facilitator groups. Only 64% of facilitators suggested other priorities as primary priorities and 33% for secondary suggesting that the majority of groups have some different priorities not listed in the survey.

Facilitators typically identified the desired effects of the group or specific priorities under 'other'. This included increased cooperation, engagement and access to education. Specific focus areas have been reported as being Climate Change, Deer Management and Floodplain Meadows.

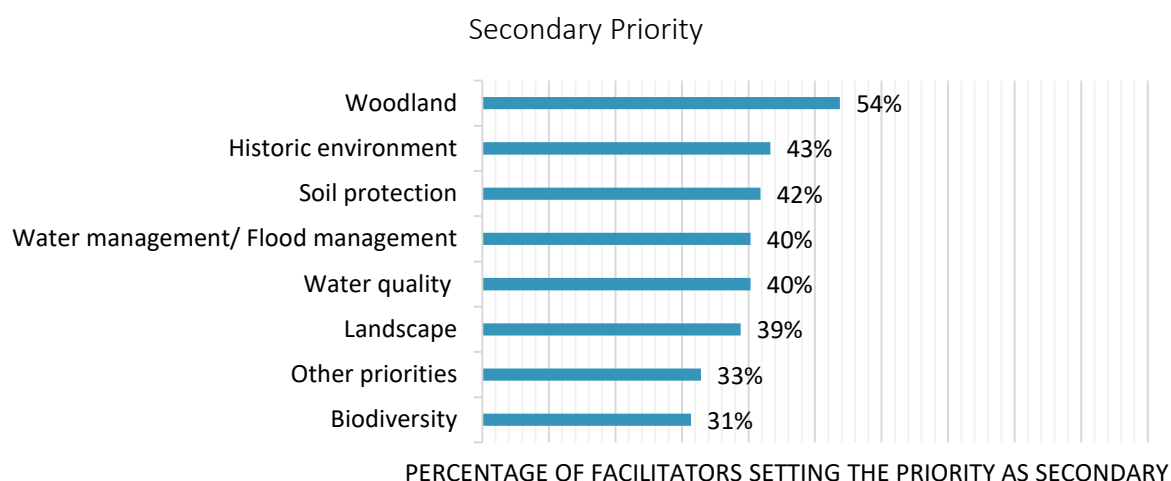


Figure A6-5 Secondary group priorities (n=67)

The category for other within primary and secondary priorities includes the following priorities for groups:

- Pollinators
- Specific local habitats including; meadows, traditional orchards, grassland, hedges linked to ancient woodlands, moorland, and heathlands
- Collaboration, networking and relationship building (between and within groups and with external organisations)
- Grazing management, livestock health and disease
- Climate Change and resilience (for both farming and the community)
- Adaptation to farming policy
- Maintaining farm business viability
- Genetic diversity
- Engagement with the wider community including improved public access
- Farmland & woodland birds such as Wader, Curlews, Cranes, Lapwing and Turtle Dove
- Integrated Pest Management
- Recognising and alleviating the effects of commercial shooting in the local area
- Deer management

Question 8. How did you initially select the group priorities?

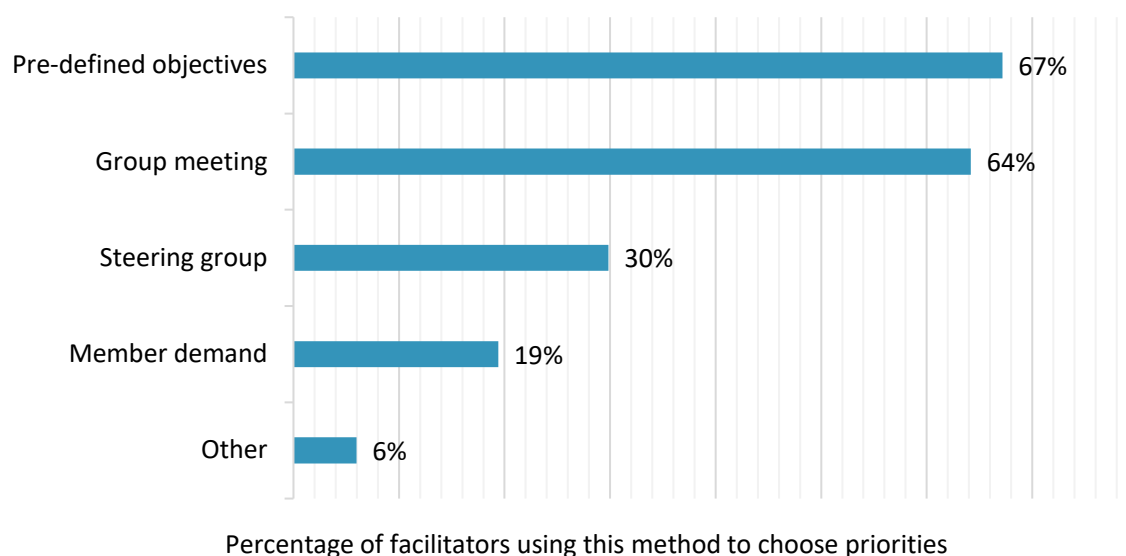


Figure A6-6 Methods used to select the groups priorities (n=67)

Participants were able to select more than one option

Two thirds (67%) of groups already had pre-defined objectives (which might be local environmental priorities, response to Storm Desmond, etc.) and 64% of the groups selected the group priorities through a group meeting. Nearly a fifth of the groups reported that their group priorities were selected by member demand. Among the 45 respondent groups who had pre-defined objectives, 64% also involved their members in priority selection (either through a group meeting or driven by member demand).

The majority of facilitators that led groups with pre-defined objectives selected their priorities based around geographic local priorities (including Natural England CS targeting statements, NCA, AONB and other strategic priorities). The second most common explanation given for the selection of group priorities was through local knowledge that was either collected through consultation with potential members or with a geographic link to the Facilitation Fund area. External agencies, such as AONB, Environment Agency (EA) and Wildlife Trusts influenced the selection of priorities as groups were able to align with existing strategic priorities for their area.

Groups without pre-defined objectives most commonly identified their priorities through group meetings with members. Facilitators reported that meetings provide an opportunity to discuss and reflect on priorities, which will enable the group to maintain engagement and focus.

'Other' methods for deciding group priorities include facilitators consulting with Natural England, looking at government advice, and using their own experience of the land within the group area.

Question 9. Have there been any changes to group priorities since the group began?

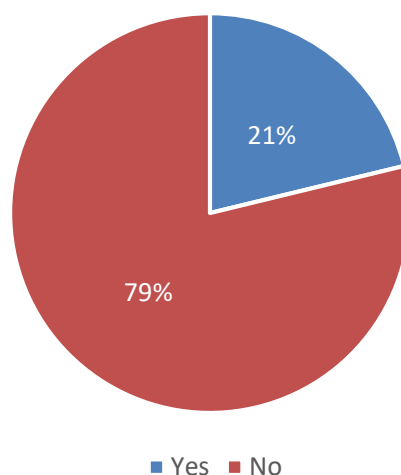


Figure A6-7 Changes to group priorities (n=67)

The majority of groups have not had any changes to priorities during the lifetime of their group. Only 14 groups mentioned that they made some changes to group priorities. Changes in priorities were typically in response to group demand or development of the group and facilitators have described these changes as an 'evolution', 'simplification' and 'refinement'.

Out of the 14 groups who reported a change in group priorities, only three groups stated that the change was a relatively large change:

- One reported that the change was driven by member demand that members became particularly interested in soil health and management plus issues of rush encroachment
- One group reported that they added pollinators and air quality into group priorities and that air quality was a larger change than pollinators as pollinators
- One reported that the change was driven by the priorities and delivery methods of the proposed ELMS funding.

Question 11. Does your group receive any additional funding other than Facilitation Funding?

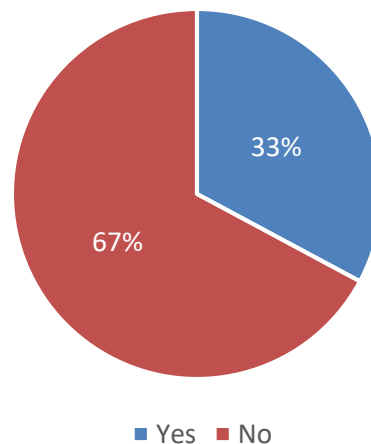


Figure A6-8 Additional funding received (n=67)

Two thirds of the respondent groups rely on Facilitation Funding solely to keep their activities going and one third of groups have received additional/external funding towards their activities.

Question 14. What's the level of external funding?

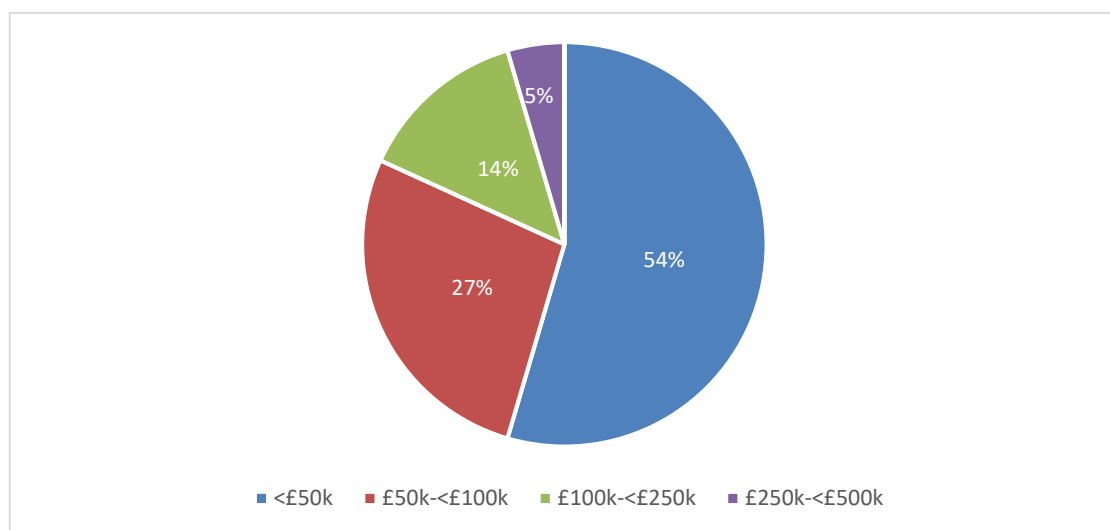


Figure A6-9 Value of external funding (n=22)

Of the 33% that had received external funding over half received less than £50,000. No groups received more than £500,000 in external funding. The numbers of groups with funding halved as the funding went up (less than £50,000 had 12, £50,000-£99,999 had 6, £100,000-£249,999 had 3).

External funding has been received from the public, private and the third sector (including local authorities, Woodland Trust, Environment Agency, AONB, water companies, etc.). Facilitators reported that they have received funding for capital works, 1:1 advice and tree planting, as well as other projects. The funding integration has helped groups to meet their priorities, suggestion that it has had a positive environmental impact. Three Groups that have received the most external funding have mostly received this from multiple sources and two of those groups identified Natural Flood Management as an area that has benefited from external funding.

Question 15 Have you been involved with Agri-Environmental Schemes prior to CS Facilitation Fund?

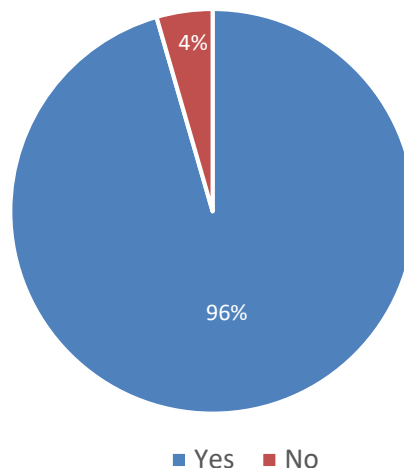


Figure A6-10 Involvement in agri-environmental schemes prior to CS Facilitation Fund (n=67)

The vast majority of groups have been previously involved with agri-environmental schemes (AES). It is rare (only 3 groups out of 67) to not have been involved with AES before.

Question 16 Have you been involved with other environmental initiatives prior to the Facilitation Fund?

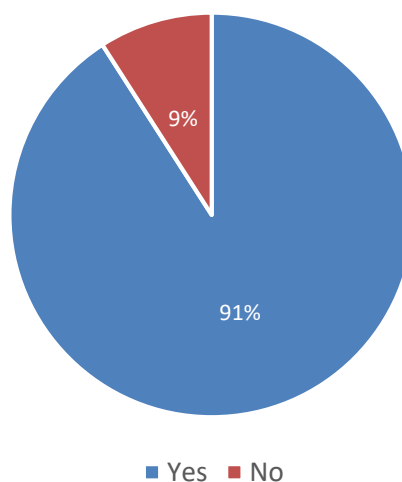


Figure A6-11 Involvement in other environmental initiatives prior to the Facilitation Fund (n=66)

Similarly to AES, the majority of groups have been involved in other environmental initiatives prior to the Facilitation Fund. A higher number of groups (6 out of 67) have not been involved in other environmental initiatives than have not previously been involved with agri-environmental schemes.

Question 18. What were the most important influencing factors in identifying training needs for group members?

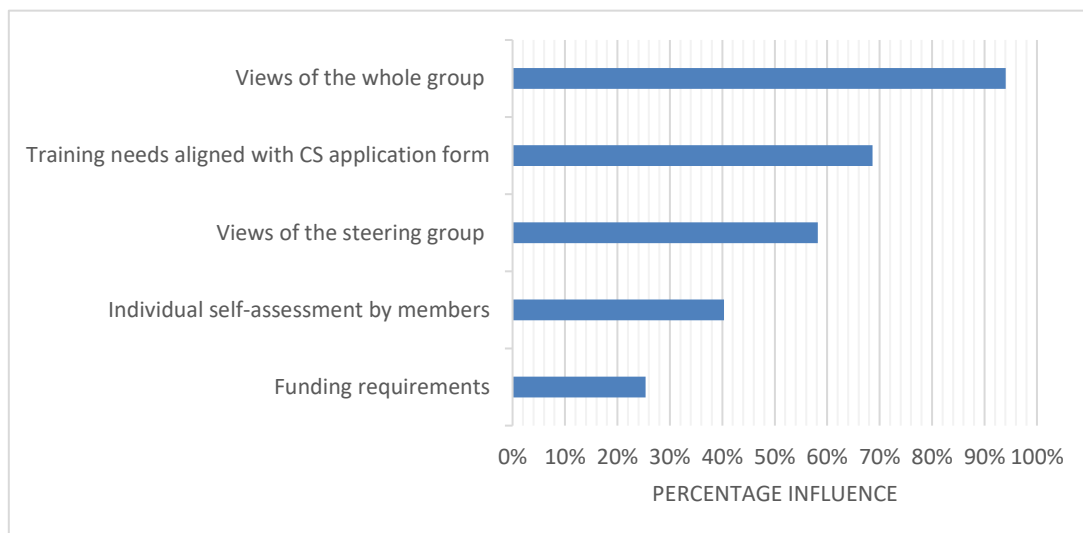


Figure A6-12 Influence of different factors on identification group training needs (n=67)

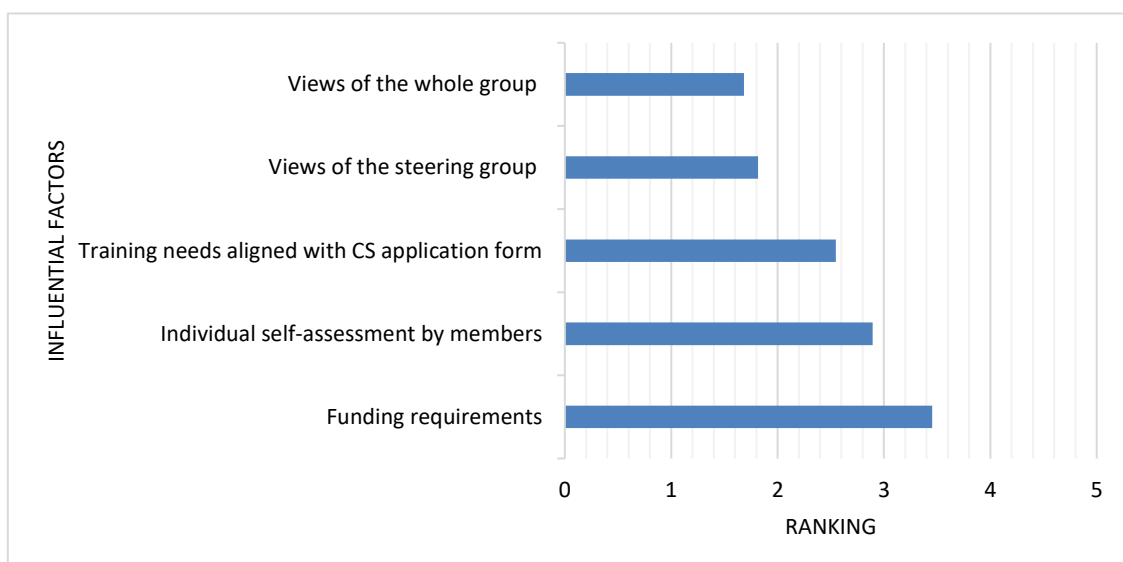


Figure A6-13 Ranking of influences on group training needs (1=most important influencing factor, 5= least important influencing factor) (n=67)

Participants were able to select more than one option.

The most used and most influential factor for identifying group training needs is the views of the whole group and least used and least influential factor is 'funding requirements'.

Question 19. Please rate the effectiveness of training formats used by your group

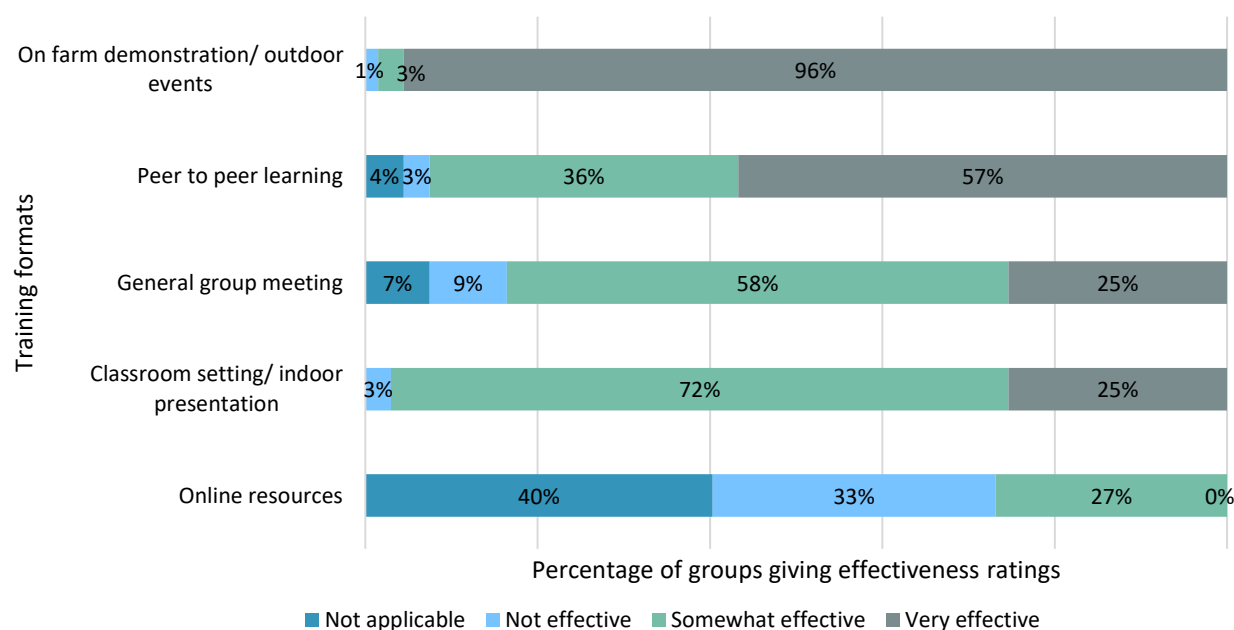


Figure A6-14 frequency of effectiveness rating for training formats (n=67)

On farm demonstrations/outdoor events are clearly rated as the most effective training format with over 90% of responses rating it 'Very effective'. The word cloud below displays the facilitators descriptions of on farm demonstrations as a training format. It is commonly believed that demonstrations provide a valuable platform for peer learning that is relevant information to group members. Facilitators reported that these training events are well attended and they receive positive feedback. Many facilitators stated that they often use farm walks with other training formats, for example, the group will have an indoor workshop session and then it will be followed by a farm walk. Farm walks provide practical, on the ground training that group members are able to relate to. Additionally, the relaxed informal atmosphere of this training delivery method has been cited as integral to its success.



Question 20. What changes have been made by group members/land managers as a result of training?

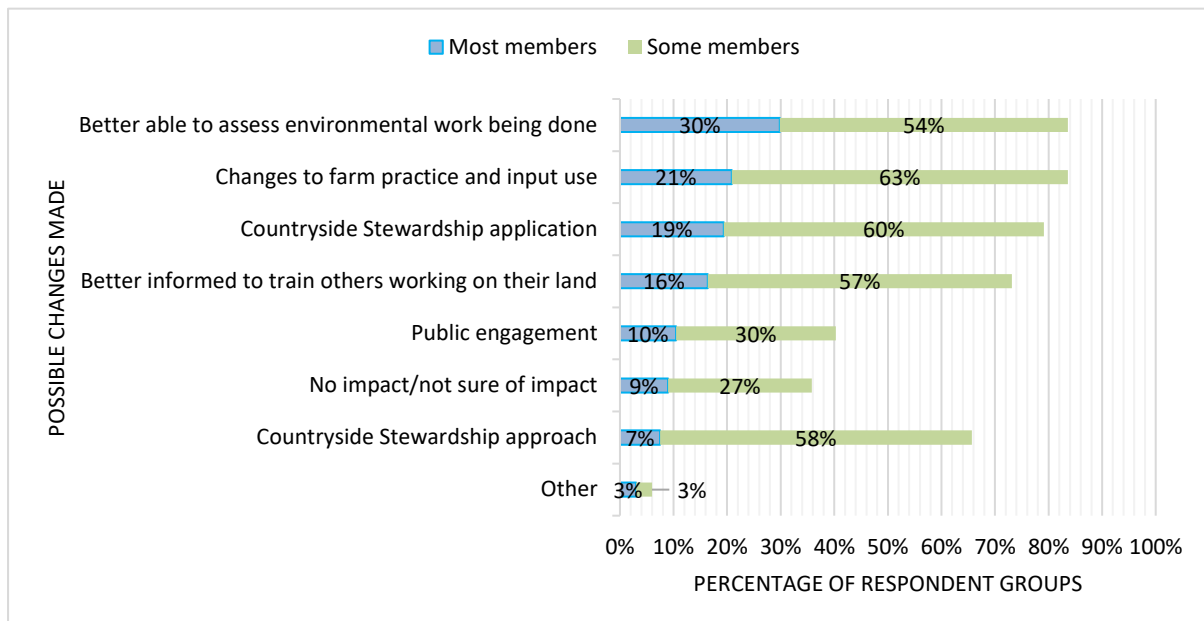


Figure A6-15 Changes made by group members/land managers (n=67)

The change that has been taken up by the most members is being 'Better able to assess environmental work being done' followed closely by making 'Changes to farm practice and input use'. Facilitators who reported that most members are better able to assess environmental work being done stated that members now have improved practical skills, understanding and awareness, particularly through on farm demonstration training events. These changes were reported as being changes that land managers have made due to training events.

Facilitators typically reported that most members who had made changes to farm practice and input use had changed practices in line with group priorities, as a result of attending training events. Soil testing and management has been identified by a couple of facilitators as an area where members have made changes and one facilitator stated that group members had reduced their metaldehyde input.

The responses for 'Countryside Stewardship application' are interesting as there are about equal number of groups reporting most members making these changes and no/few members making these changes, however there is a large number of groups where some members are making changes to their Countryside Stewardship application.

Question 21. What outcomes have been/ will be delivered by the implementation of the training?

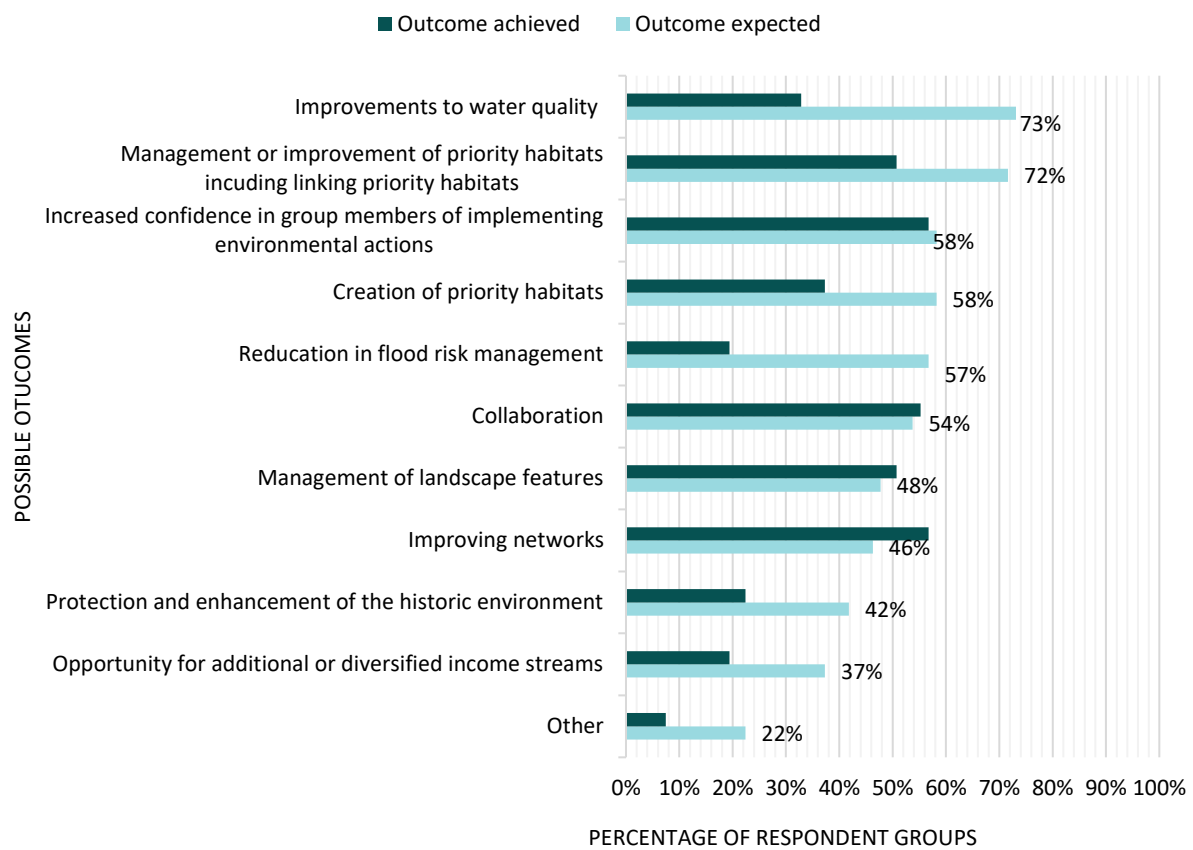


Figure A6-16 Achieved and expected outcomes from training (n=67)

Participants were able to select more than one option.

Outcomes are relating to what will happen if the content of training that has been delivered has been or will be implemented by land managers. Most achieved outcomes were 'Increased confidence in group members of implementing environmental actions', 'collaboration', management of landscape features', and 'improving networks' all with over 50% reported achievement.

Facilitators stated that through learning group members have gained confidence. The network that the Facilitation Fund provides for group members has also helped build confidence, as group members are able to access support and discuss ideas. A few facilitators stated that group members were actively working together, and with external organisations, on implementation of environmental actions, such as changes in management and tree planting.

Facilitators indicated that through collaboration within the group and also with external organisations, environmental outcomes are being met. Collaboration between group members includes working towards environmental outcomes, such as butterfly monitoring and Natural Flood Management, as well as sharing contractors, machinery and ordering wild bird mixes in bulk.

The majority of management of landscape features includes boundary improvement, such as hedges and walls. Facilitators also reported woodland planting, pond restoration and traditional buildings.

Question 22. In what way has the Facilitation Fund helped/influenced the CS applications by group members since the formation of the group?

The most common response received from facilitators for this question was that there were more CS applications submitted due to the support that group members received through being part of a group. The support has been provided through events organised by the facilitator, such as workshops and external support has been influential in increasing CS applications. Organisations, such as Natural England, SAC, CLA, RSPB have attended group meetings and workshops. There has been a reported frustration that facilitators are unable to give 1:1 advice to members but facilitators have provided guidance, encouragement and support to group members, ultimately increasing applications to CS and the options that members have chosen.

Through being part of the Facilitation Fund group members have been able to align their CS application to group priorities. Facilitators have reportedly encouraged the uptake of more CS options per application and the facilitators' holistic view has encouraged priorities for the area to be incorporated into CS applications. Group members have also reportedly chosen more suitable options for CS due to the support received and this has benefits to the area and helps to meet the group priorities. It has been reported that group members are *"more aware of the context of their farms in relation to the wider landscape and neighbouring farms"* which has been *"prominent when undertaking habitat management to link areas"*. This comment from a facilitator suggests that CS options are being positively influenced by the Facilitation Fund because land managers are choosing more ambitious and joined up options.

Some facilitators reported that the group had little effect on the number of applications. Some facilitators attributed this to the perceived unsuitability of CS in their areas, particularly the uplands and one response stated that the uncertainty of Brexit has led to a loss of confidence among group members. However, some facilitators have still secured external funding streams and some have reported that members are performing environmental benefits without being part of CS. Some groups have reportedly not had any additional applications from their group, partly due to the perceived restrictions of CS.

Question 23. What level of help did they receive in relation to their application?

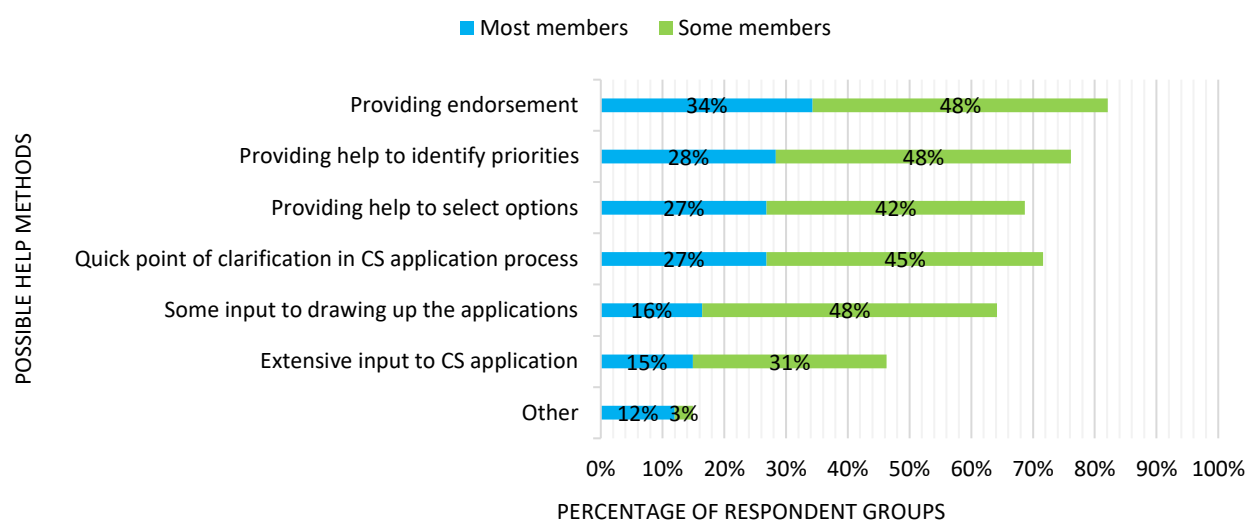


Figure A6-17 Help received with applications (n=67)

A third of respondent groups reported that most members were helped through the provision of endorsement. Most groups reported helping some members through:

- Help to identify priorities
- Help to select options
- Quick point of clarification in CS application process
- Some input to drawing up the application

Over 50% of groups reported that they helped either none or a few members by giving extensive input into CS applications.

Question 24. Does your group have interactions with other organisations within or outside your area?

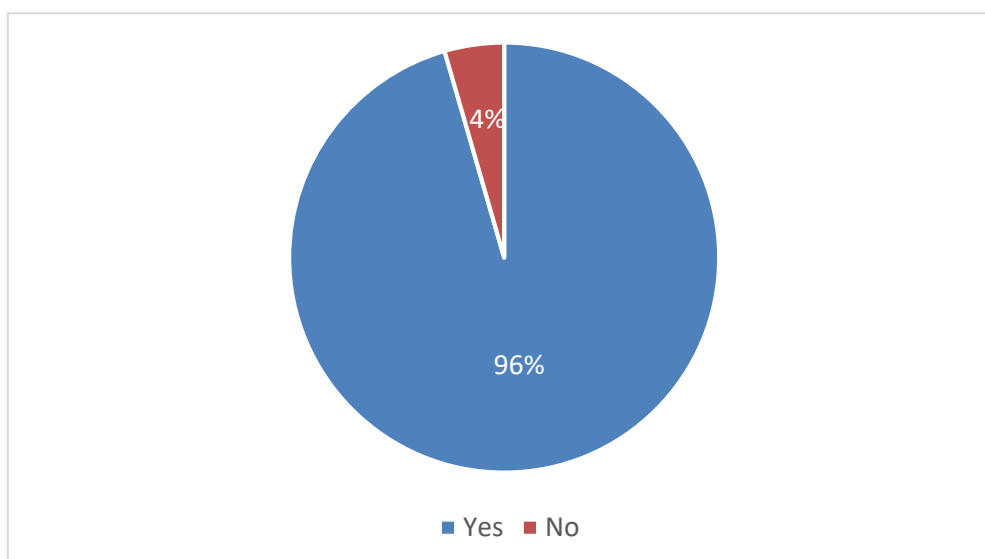


Figure A6-18 Group interactions with other organisations (n=67)

The pie chart clearly shows that almost all of the facilitation groups have interactions with other organisations and groups.

Question 25. If 'yes', please provide an outline of the relationship and how this benefitted the group and the environmental outcomes (e.g. connections and networking, economics activities etc)

The Facilitation Fund Group appear to have relationships with a variety of organisations. The connections are with regulatory organisations, such as water companies, Defra, and the Environment Agency, with Trusts, such as Wildlife and Rivers Trusts as well as involvement with smaller more local projects. Collaborative working is seen as an integral part in achieving environmental objectives and facilitators have indicated that organisations have been able to fund capital works, where the Facilitation Fund is unable to do this.

Facilitators have provided details of how their collaboration with other groups allows them to share costs and knowledge, maintain interest and build wider relationships. By establishing relationships with organisations specialists are able to contribute to training events, which enables group members to receive high quality training and information, increasing the effectiveness of their environmental input.

Many facilitators reported working closely with National Park Authorities, indicating that the alignment of group priorities fits into the local landscape and complements the work of other organisations in the area.

Question 26. How well do you think the group has achieved the environmental objectives set out in the original Facilitation Plan?

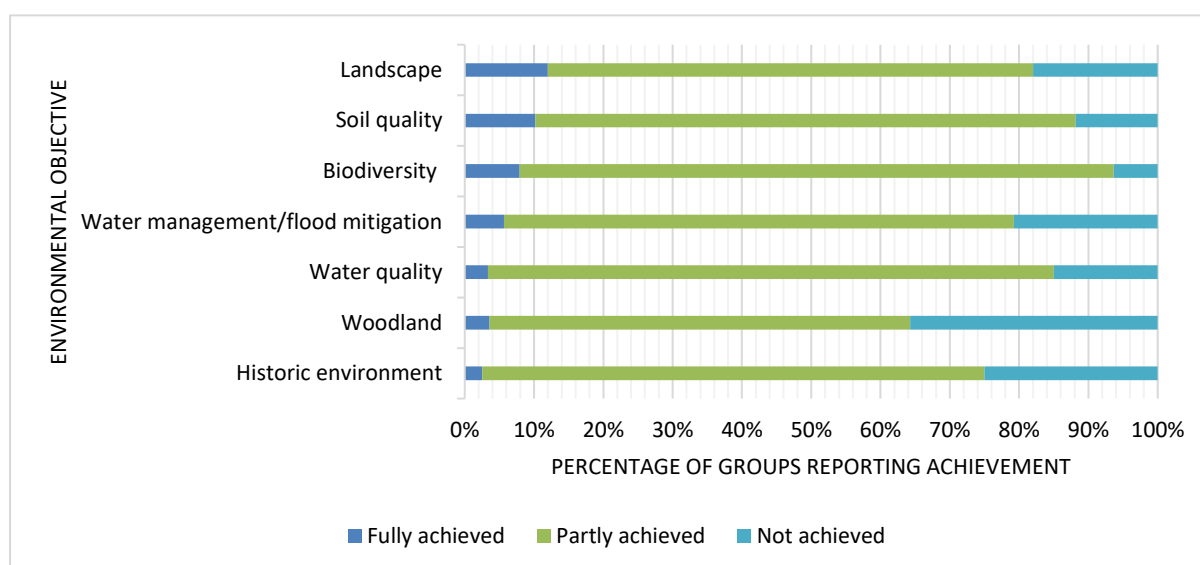


Figure A6-19 Achievement of environmental objectives (n=67)

Figure A5-20 clearly shows that the majority of groups report their environmental objectives as being achieved and partly achieved.

Biodiversity was the most partially and fully achieved objective followed by soil quality, water quality and landscape. The explanations given by the facilitators for this score were typically that the environmental outcome could not be achieved in a short space of time. Facilitators responded that the inclusion of members in CS schemes helped to contribute toward biodiversity and that training events had helped to increase awareness about this issue. A couple of facilitators who gave a score of 2 (objective not achieved) reported that some implementation of actions had occurred in their group, such as hedges being planted and habitats being restored.

Landscape outcomes have been described by facilitators as successful. Group members have reportedly improved the way that landscape features are managed and have collaborated to connect

boundaries with their neighbours. Facilitators who gave a score of 2 (objective not achieved) stated that training events had helped to contribute to members understanding of landscape scale and boundary improvement and riparian management is ongoing.

The lowest percentage of facilitators reported that Woodland priorities had been fully or partially met. Facilitators who reported that the groups' woodland objectives had not been met, mentioned issues around engagement, such as members being reluctant to give up areas of land, conflict with tenancies and lack of interest. Additionally, some facilitators gave this a low score due to the belief that it is too early to draw conclusions and that it is a low group priority.

Question 27. Are there any other wider impacts of the Facilitation Fund for group members?

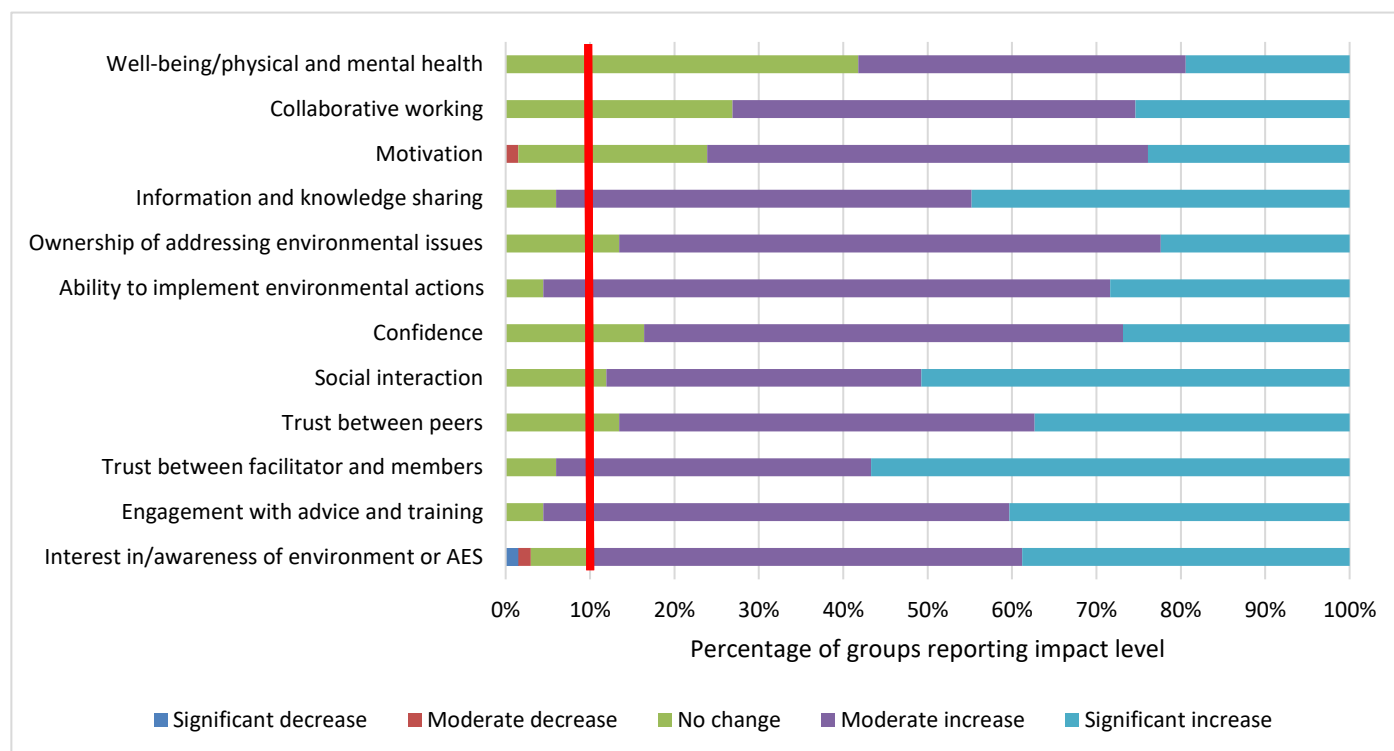


Figure A6-20 Wider impacts of the Facilitation Fund on the group members (n=67)

Facilitators reported a moderate increase for all wider impacts. Social interaction, Information and Knowledge Sharing.

The decrease in interest/awareness of AES was reported by two facilitators and they stated that perceived CS complexity, late payment and unsuitability has been responsible for disengaging farmers. However, both respondents indicated an increased awareness and interest in the environment itself, noting that Farmer engagement in ELMs is positive.

Facilitators stated that trusted relationships had been built between themselves and group members and that positive discussions highlighting environmental issues are occurring and many facilitators were in regular contact with group members. Similarly, social interaction scored highly with facilitators responding that members are enjoying being part of a group, having discussions and that the Facilitation Fund brings farmers together. Relationships and discussions have also contributed to the information and knowledge sharing that facilitators have scored highly.

Question 28. What are the most important enabling factors for achieving the group goals?

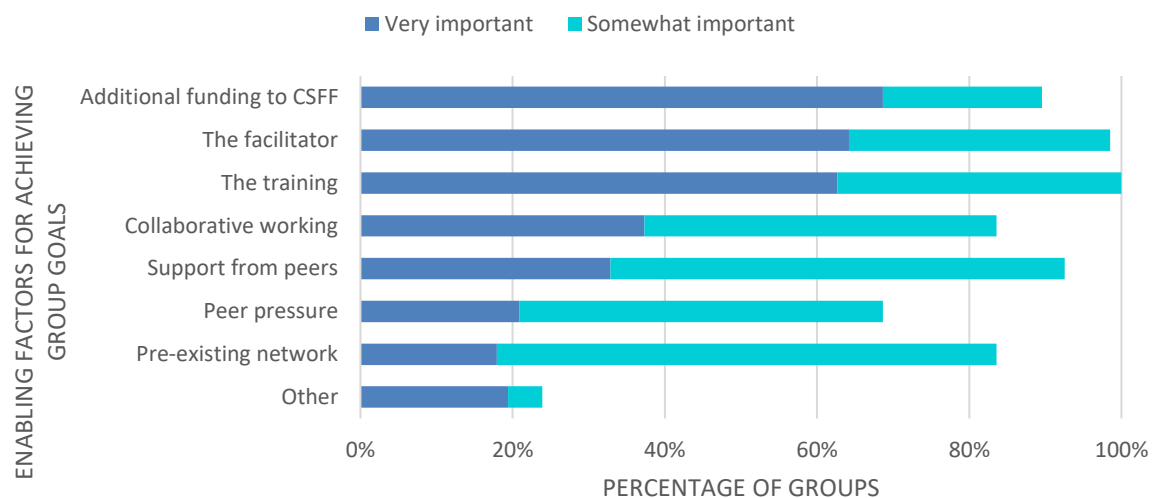


Figure A6-21 Relative importance of the enabling factors for achieving group goals (n=67)

External funding, the facilitator and training have been rated as most important to achieving group goals. Peer pressure and collaborative working are rated the highest for being not important with 18% and 15% respectively.

Facilitators reported external funding as having a positive motivational factor that helps to maintain interest in the group and promotes activity. Additionally, those that scored external funding very high suggested that complex and ambitious projects could be undertaken with the support of external funding.

Facilitators describe their role as very important to the success of the group. They have described their role as being important in promoting the bottom up approach of the Facilitation Fund and being key in creating and maintaining the momentum of the group. The facilitators typically reported that their attitude is important to the success of the group, by explaining that their drive, passion and enthusiasm is central in establishing the group and ensuring that environmental outcomes are worked towards. A couple of facilitators noted that trust was key to the success of the group, as indicated in Q27.

Two respondents provided other influential influences and these were around relationships and mutual respect and the group assistance in providing CS assistance. Peer pressure has been scored as somewhat important but it is typically not scored as high as other factors. The benefits of peer pressure have been noted as influential in encouraging people to become members or to see what other people are doing but it is typically believed that other factors are more important. However, support from peers is considered higher and it is believed that influential farmers are the ones that are likely to be listened to the most.

Question 29. How and why do you think that facilitation role is important?

The facilitators most commonly identified their main role as one of collaboration, communication and co-ordination; strategy and delivery; confidence building and local environmental conservation.

Facilitators have stated that their collaborative role is essential in building a local network, between group members and public and private organisations, such as water companies, or wildlife groups, helping to meet environmental objectives with a local focus. A further collaborative benefit has been reported as the facilitator having an overview of the local environmental issues and providing a role

that enables and promotes joined up working and thinking. Communication is central to the facilitators' role and they reported that they provide a single 'point of contact', whereby they signpost group members to relevant funding sources, advice or schemes. It has also been reported that facilitators, due to their work 'on the ground', are able to maintain contact and communicate between group members and organisations (e.g. NE, Wildlife Trust etc).

The facilitation role has reportedly also been important in providing support and guidance leading to the increased confidence of members. By facilitating events, driving projects forward and leading delivery, group members were able to partake in working towards environmental outcomes that would not be achieved without the Facilitation Fund. 67% believed that group activity and outcomes are not self-sustaining and this is partly due to the lack of spare time that land managers have to dedicate to facilitating a group. 25% thought that some elements of the group would become self-sustaining but overall there is a requirement that in order for the group to achieve the most environmental benefit, continued funding is required, *"the features already established should be retained longer term but there is a huge amount more to do in relation to connectivity and other priorities"*. The word cloud below provides an overview of facilitators' responses to question 29 (how and why the facilitation role is important).



As shown in the word cloud, facilitators most commonly reported their role as providing focus to the group, which is important in ensuring that the group have clearly defined objectives to collectively work towards. The role of the facilitator reportedly:

"brings people together, brings focus to the group, enables networks to be built and greater connections with relevant organisations and people"

and collaboration is also enabled by:

"using local knowledge, contacts and industry experience to create worthwhile training with respected speakers".

Additionally, facilitators are able to:

"provide a point of contact"

"pass on all updates and important information as it is released [which] provides the farmer with just one contact where he/she can keep up to date and over the course of the project trust is built up between members and facilitator, which can lead to more changes to management on the ground".

This suggests that facilitators have a broad overarching role that is able to provide social benefits to group members. Strategic and practical functions provided by facilitators were also reported as being

important elements that would not be self-sustaining, such as organising events and providing overall direction to groups. Facilitators often have a good understanding of local issues, which has been reportedly helpful in building trust:

“the facilitator role has been vital because it means [group members] have someone local, who lives and works in the area and understands the issues they face to help them to make a difference on their farms. The events help to encourage activity and trust and without a facilitator they would not happen”.

Therefore, there is a suggestion that familiarity with local people and area is beneficial to the management of groups.

Question 30. Has the wider community been involved in group activities?

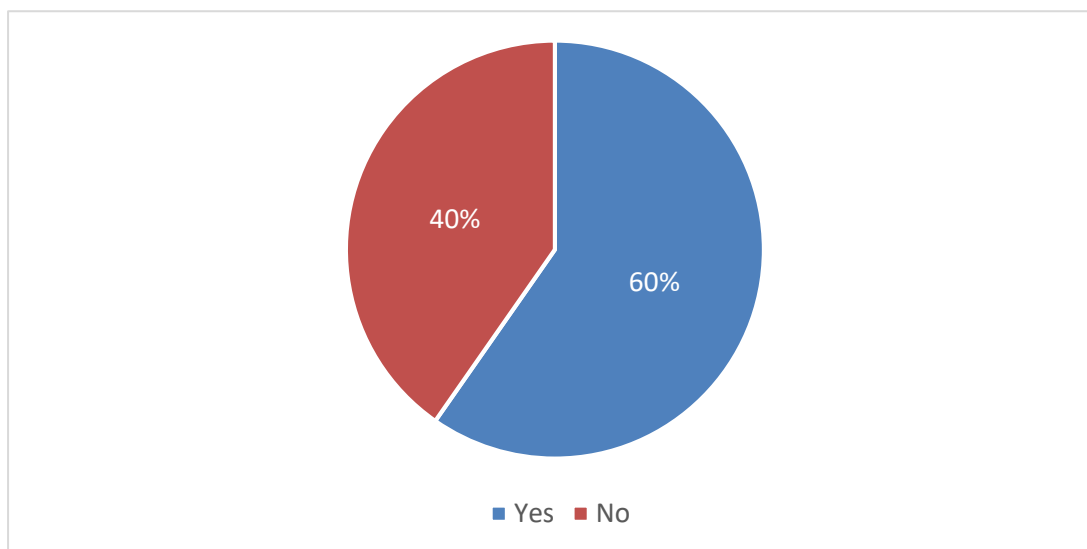


Figure A6-22 Wider community involvement in group activities (n=67)

Figure A6-22 shows that over half of the groups have involved the wider community in their activities.

Question 31. If the wider community has been involved in group activities, how were they involved and what has been the impact?

The wider community were most commonly involved by attending events run by the Facilitation Fund. Wildlife surveys were also undertaken by members of the public that contributed to the Facilitation Fund and helped to raise awareness of wildlife issues in the same area. Some members of the public have volunteered at Facilitation Fund events by helping to deliver training. It was perceived by facilitators that the involvement of the wider public has helped to build relationships between the farming community and the local community.

Question 32. List up to 3 outcomes delivered by the Facilitation Fund groups that would not have been achieved without the funding or if farmers take environmental actions individually.

The majority of responses were focused around group collaboration and CS Priorities that these were linked to. Social/personal connections, learning and working together towards environmental outcomes have been noted as dependent on the existence of the Facilitation Fund. Facilitators reported intangible benefits that have been a result of the existence of the Facilitation Fund groups, such as improved confidence, understanding, knowledge, enthusiasm, social cohesion and the support network that is created when members feel part of a group. This has allowed members to share best practice, ideas, farm machinery and to carry out joined up work in the group area, contributing towards the fulfilment of CS priorities. Events with external organisations have reportedly played an

important role in collaborative learning by ensuring that high quality training was delivered and environmental benefits were achieved at a landscape scale. Facilitation funding has enabled groups to host events:

“we would not have been able to have specialist speakers deliver soil meetings as these speakers are very expensive”

and facilitators have:

“coordinated training events on target species, using local experts, e.g. GWCT, Butterfly Conservation and Buglife”.

By involving local experts and external organisations a network is able to be created or strengthened. Working together with external organisations also has had environmental benefits, *“coordination, in conjunction with local rivers trust to implement NFM measures in the catchment”*. This collaboration enables authorities to disseminate information to land managers on the ground, which helps to build relationships and trust between group members and organisations.

Question 33. Are these outcomes likely to be self-sustaining or to require continuous support after the Facilitation Fund ends and why?

There is a consensus that for environmental outcomes to be sustainable there is a requirement for continued support in some form. This is due to the momentum required to run a group and the funding that is needed to ensure success, delivered through learning and the support of the group. Facilitators have stated that members are under time constraints and there is a need for strategic organisation, planning and focus, which is an important aspect of a facilitator's role and it is likely that land managers would not have the time to fulfil this role without funding. Additionally, it was felt that the Facilitation Fund provides good value for money with the training that it delivers to its members.

There is a belief that some elements of the group are able to be self-sustaining, such as environmental improvements that have already been put in, e.g. bird boxes, buffer strips, but some elements require consistent engagement, such as continuing ongoing work, *“without continuous support interest will drop”*. Groups and projects that have not been long term are considered the most vulnerable to losing momentum. Some facilitators believe that due to the engagement with members the projects should be able to be self-sustaining and that is realistic as long as there is some kind of support role available and this could be provided by key organisations.

Question 34. What has worked well for your Facilitation group to achieve its objectives?

The majority of facilitators reported that training has been very popular and important in meeting objectives. The variety of delivery methods, such as farm walks and demonstrations, workshops and guest speakers and meetings have been acknowledged as being successful in delivering different objectives and training, covering topics that are tailored to the group's needs. Many facilitators identified the ability to have specialist, expert speakers at events as important in order to engage group members and maintain the momentum of the group. Group members:

“have embraced the training, many have implemented the training and created a good social network and enhanced relationships within the catchment”

suggesting that training has been able to provide a range of social as well as practical benefits. Some groups have employed a steering group to help provide direction to the group, the benefits of this approach has been:

“encouraging the bottom up approach by allowing farmers to have an input into what workshops they would like to see delivered and what they feel they need extra support with [and] identifying key speakers and signposting members”.

Therefore, it is suggested that group members value having input into group activity and working together has been successful.

In addition to the input of external specialists at training events, relationships with organisations have been mentioned as being successful. Engagement with a range of organisations, such as the EA, local utilities companies, Defra, Rivers Trust, National Park Authorities and the RSPB has been reported as being successful in collaborating with the group and communicating their messages to farmers. The Facilitation Fund reportedly acts as a point of contact for organisations and members, communicating messages between the two and bringing people together to build relationships and meet environmental objectives. Some respondents also identified the relationships that they have with other groups and support that they receive from Natural England is important in enabling groups to meet their objectives.

Facilitators stated that relationships and trust between members is key to achieving objectives. Group members have apparently gained confidence as a result of the facilitation group, have a positive attitude and encourage peer involvement, work together with a collaborative ethos, encourage innovation and built trust in the area and have trust in the facilitator. Group members are also pro-active and show commitment to the environmental objectives, which is important in building and sustaining relationships and meeting group priorities. The Facilitation Fund has enabled group members to form, *“good personal relationships, a positive attitude, and a wide range of training appealing to all [members]. Certain members have acted as catalysts and ‘cheer leaders’ for encouraging peer involvement”*. The formation of group relationships is important to ensure environmental outcomes are achieved on a landscape scale and a positive attitude by group members helps to encourage wider group engagement.

Question 34.a What has not worked for your Facilitation Fund group to achieve its objectives?

Most respondents stated that the lack of support for 1:1 advice is a significant issue, as each farm has different needs. There is a belief that this lack of support has contributed to fewer CS applications, as facilitators are unable to provide advice. If facilitators were able to provide 1:1 advice they may be able to engage hard to reach members.

A number of facilitators were critical of Countryside Stewardship, particularly its perceived unsuitability in upland areas:

“CS has been a huge failure as many members, the majority of whom are in the uplands, have not been able to put together a feasible mid or higher tier scheme to replace old ELS/HLS agreements – and we have really tried but the options and payments are just not appropriate”.

CS is perceived to be complicated and not as flexible as was hoped, which has deterred group members from applying:

“CS has not proved to be as flexible and attractive as we all had hoped. The issue of inspections and backdated penalties has made farmers and I unwilling to try and change management to existing options” and the *“rigid eligibility requirements for CS options”* has deterred some applications.

Additionally, due to future uncertainty it has been report that *“there is a lack of interest to take up a new scheme as members wait to hear about the new ELMS”*.

Some facilitators have reported that group membership commitment has been an issue with some members being difficult to engage. This has had effects on attendance at events and meetings. A few facilitators also reported that they found it difficult to encourage group members to lead the group and for the group to be ‘farmer led’. A couple of respondents noted that it was difficult to communicate to group members with IT based information. The *“lack of requirement for monitoring means that farmers cannot always see the impact that their management changes are having”*, and *“it is difficult to demonstrate direct impact in terms of outcomes”*.

Question 35. What aspect of the group/set up of the Facilitation Fund needs the most improvement?

The most common response was that the facilitators think that there should be provision for them to deliver 1:1 advice to group members (34%). This percentage should be treated with caution because the question is open, which is used to elucidate in depth qualitative responses. It is believed that if this was included in the Facilitation Fund the approach would be able to be more targeted, relationships would become stronger and ultimately environmental outcomes will benefit. One facilitator has sought additional funding through (CSF, AONB) to enable them to deliver 1:1 advice.

The second most common response (accounting for 22% of the total responses) related to the administrative issues that facilitators face. Some facilitators were critical of the administration that they had to complete, stating that it was time consuming and that it could be streamlined. Additionally, some facilitators were critical of the delay in payments and reported that particularly for small consultancies this can be a significant issue. Facilitators that were not from an organisation and were acting as individuals feel that they would benefit from more support from Natural England and that sometimes it can take a long time to receive replies to queries.

Facilitators stated that the scheme would benefit from more flexibility, particularly relating to the funding of capital items, as some members are limited to what they can apply to through CS and that the environmental impact will be more significant if the group has the flexibility to deliver more than training. Some facilitators also felt that if groups ran for longer more environmental outcomes would be achieved. A couple of facilitators stated that it would be beneficial if the process of signing up new members was quicker, if family or staff members were able to attend meetings if the original member was unable to attend and to make it simpler for farm staff and organisational staff to attend as members.

It was felt by a couple of facilitators that the Facilitation Fund would benefit from more collaboration and cooperation between other groups and statutory agencies and regulators but in previous responses this was largely successful.

When discussing the group set up, facilitators stated that they had issues with selecting dates and having meetings at busy times of the year. A facilitator noted that it would be useful to promote their activities to encourage more buy in. Engagement has also been reported as an issue whereby some members do not engage as much as others and it requires significant resource to maintain cohesion within the group. Additionally, one facilitator believes that a group needs to run for five years to grow and sustain a project and due to Brexit they have not had this much time, only three years.

Question 36. If you have any suggestions which could improve the future effectiveness of an initiative such as the Facilitation Fund please give details.

The most common response received was related to the funding of the scheme and particularly that funding should cover 1:1 advice. It is believed that 1:1 advice will help improve member engagement with the group and provide support and improved localised targeting. Further funding responses related to greater flexibility with funding, with members stating that funding for capital works would lead to greater group effectiveness and allow members to see a tangible outcome. Some facilitators believe that there should be an incentive to farmers to become members and that they should be paid to attend events. Additionally, it is believed that funding is required for longer than five years to enable groups to be more effective. Some respondents also believed that funding should be provided for monitoring of the scheme in order to measure effectiveness.

Facilitator responses highlighted administrative issues as an area that could be improved, which would lead to greater effectiveness. The delay in payments has led to reputational damage for Natural England and communication has been identified as requiring improvement. The claim process has been highlighted as time consuming and facilitators state that a streamlined system would be more effective.

Additionally, facilitators praised the Facilitation Fund model and identified that there was a clear role for its function in meeting social and environmental outcomes.

APPENDIX 7 – INTERVIEW SCHEDULES

FACILITATOR ONLINE SURVEY

INTRODUCTION

The Fera/ADAS consortium has been commissioned by Defra and Natural England to conduct an online survey of facilitators involved in forming and operating the Countryside Stewardship (CS) Facilitation Fund groups.

The survey is part of a larger study to collect evidence on how well the partnership approach is working to deliver shared environmental outcomes between land managers and particularly the outcomes that go beyond what could be delivered by individual holdings acting in isolation.

We would very much like your views and opinions

Natural England has asked us to find out how effective the CS Facilitation Fund is in delivering environmental and socio-economic outcomes through collaboration between land managers and partnership working. It is important that any future policy development takes account of your views. As group facilitators we would really appreciate your insights and feedback.

Structure of the survey questions

The survey will ask questions around five themes:

- Information about your group
- Facilitator experience
- Group activities and outcomes
- Group achievements
- Reflections on lessons learnt and further improvement

Confidential and anonymous

The survey will take about 30 minutes to complete and your participation is voluntary. Responses will be entirely confidential and will contribute to an anonymous dataset for analysis. A report of the findings will be produced but data will be aggregated and anonymised and we will not release the identities of individual participants in the survey. Data will be stored on a secure computer with access only by the immediate research team at ADAS and will be deleted within 12 months of completion of the research project.

1. Please can you confirm if you are happy to take part in the survey?

	Tick	
YES	☐	GO TO SECTION 1
NO	☐	END AND CLOSE

Section 1: Information about your group

2. Name of your group

3. Was your group pre-existing (for example, Nature Improvement Area) before the Facilitation Fund?

	Tick	Detail
YES	☐	
NO	☐	

4. Which of the following best describes the initial group formation?

Type of group	Tick	Details
Organisation led (National Trust, Farmer Network, GWCT, NPA, AONB, Water companies, Wildlife trusts, Rivers Trust, etc.)	☐	
Adviser-led (local adviser using existing contacts)	☐	
Farmer-led	☐	
Other (please specify)	☐	

5. Who were the key person(s) and organisation(s) that drove the formation of the group?

6. How were the group members brought together? E.g. utilised existing networks, open invitation, mail shot, etc.

	Tick (select all that apply)	Details (write in)
Utilised existing networks	☐	
Open invitation	☐	
Mail shot	☐	
Other (specify)	☐	

7. What were the initial priorities and why were they chosen?

Priorities	Score			Why were the priorities selected, (presence of priority habitats, landscape features, catchment issues, etc.)?
	0=Not relevant	1=Primary priority	2=Secondary priority	
Biodiversity	☐	☐	☐	
Woodland	☐	☐	☐	
Water quality	☐	☐	☐	
Historic Environment	☐	☐	☐	
Landscape	☐	☐	☐	
Water management /flood management				

Soil protection	☐	☐	☐	
Other (please state)	☐	☐	☐	
Other 2 (please state)	☐	☐	☐	
Other 3 (please state)	☐	☐	☐	

8. How did you initially select the group priorities?

	Tick (select one)	Details (write in)
Pre-defined objectives (e.g geographic priorities, environmental priorities, response to Storm Desmond, etc.)	☐	
Group meeting (including members)	☐	
Steering group (excluding members)	☐	
Member demand	☐	
Other (specify)	☐	

9. Have there been any changes to group priorities since the group began?

	Tick	
YES	☐	GO TO Q9
NO	☐	GO TO Q10

10. If there have been changes, please describe why they changed and how they have evolved?

8a). What changed?

8b) Was it a large change?

8c) Why did it change?

8d) What is happening now?

11. Does your group receive any additional funding other than Facilitation Funding?

YES	GO TO Q11
NO	GO TO Q14

12. If your group has received external funding, what is the source (e.g. Private investor, NGO, local authority, etc.)?

13. What group priorities are funded through the external funding?

14. Please state level of external funding

Funding band	Tick
Under £50k	☐
£50k-£100k	☐
£100k – 250k	☐
£250k – 500k	☐
£500k -£1m	☐
£1m and above	☐

Section 2: Facilitator experience

15. Have you been involved with Agri-Environmental Schemes prior to CS Facilitation Fund?

	Tick
YES	☐
NO	☐

16. Have you been involved with other environmental initiatives prior to Facilitation Fund? If 'YES', please specify.

	Tick	Details
YES (specify)	☐	
NO	☐	GO TO Q17

17. Did you need any additional training to fulfil the role as a facilitator? If 'YES', please specify.

	Tick	Details
YES (specify)	☐	
NO	☐	GO TO Q19

Section 3: Facilitation Group Activities and Outcomes

18. How did you identify training needs for members?

Categories	Tick	Details
Steering group decided	☐	
Whole group decided	☐	
Training events align with application form	☐	
Funding requirement (condition of external funding to deliver particular training focus)	☐	
Individual self-assessment by members	☐	
Other (please specify)	☐	

19. Please rate the effectiveness of training formats used by your group.

Format of training	Score 1 = not effective, 2= somewhat effective; 3= very effective			Please explain why you think this is the case
	1	2	3	
On farm demonstration/outdoor events	☐	☐	☐	
Peer to peer learning	☐	☐	☐	
Classroom setting/indoor presentation	☐	☐	☐	
General group meeting	☐	☐	☐	
Online resources	☐	☐	☐	
Other	☐	☐	☐	

20. What changes have been made by group members/land managers as a result of training?

	Few members	Some members	Most members	Please give details of the changes using examples etc.
Changes to farm practice and input use	☐	☐	☐	
Changing the approach to a CS option, changing to a more ambitious option or including additional options	☐	☐	☐	
Public engagement	☐	☐	☐	
Countryside Stewardship application	☐	☐	☐	
Better informed to train others working on their land	☐	☐	☐	
Better able to assess environmental work being done	☐	☐	☐	
No impact/not sure of impact	☐	☐	☐	
Other(please specify)	☐	☐	☐	

21. What outcomes have been/ will be delivered by the implementation of the training?

Outcomes	Outcome achieved (tick all that apply)	Outcome expected (tick all that apply)	Details of achieved/expected outcomes
Management or improvement of priority habitats including linking priority habitats	☐	☐	
Creation of priority habitats	☐	☐	
Improvements to water quality	☐	☐	
Reduction in flood risk management	☐	☐	
Management of landscape features	☐	☐	
Protection and enhancement of the historic environment	☐	☐	
Increased confidence in group members of implementing environmental actions	☐	☐	
Opportunity for additional or diversified income streams	☐	☐	
Improving networks	☐	☐	
Collaboration	☐	☐	
Other (please specify)	☐	☐	

22. In what way has the Facilitation Fund helped/influenced the CS applications by group members since the formation of the group?

23. What level of help did they receive in relation to their applications?

	Few members	Some members	Most members	Please give details of the help provided
Quick point of clarification in CS application process	☐	☐	☐	
Some input to drawing up the applications	☐	☐	☐	
Extensive input to CS applications	☐	☐	☐	
Providing help to select options	☐	☐	☐	
Providing help to identify priorities	☐	☐	☐	
Providing endorsement	☐	☐	☐	
Other 1 (please specify)	☐	☐	☐	
Other 2 (please specify)	☐	☐	☐	
Other 3 (please specify)	☐	☐	☐	

24. Does your group have interaction with other organisations within or outside your area? (Either a Facilitation Fund group or a different organisation)

	Tick	
YES	☐	GO TO Q24
NO	☐	GO TO Q25

25. If 'yes', please provide an outline of the relationship and how this benefitted the group and the environmental outcomes (e.g. connections and networking, economic activities etc.).

Section 4: Group Achievements

26. How well do you think the group has achieved the environmental objectives set out in the original Facilitation Plan

Priorities	Score 0= Not relevant 1 = Not achieved 2=Partly achieved 3 =Fully achieved				Please provide an overview of evidence supporting your answer.	If objectives were not achieved, please explain difficulties encountered
	0	1	2	3		
Biodiversity	☐	☐	☐	☐		
Woodland	☐	☐	☐	☐		
Soil quality						
Water quality	☐	☐	☐	☐		
Water management/flood mitigation	☐	☐	☐	☐		
Historic Environment	☐	☐	☐	☐		
Landscape	☐	☐	☐	☐		
Other(specify)	☐	☐	☐	☐		

27. Are there any other wider impacts of the Facilitation Fund for group members (e.g. social support, wellbeing, trust, confidence, skills sharing etc.)? Please give details and examples.

Social outcomes and indicators (for example, not exhaustive)	Score					Please provide evidence/examples supporting your answer.
	1=Significant decrease	2=Moderate decrease	3=No change	4=Moderate increase	5=Significant increase	
Interest in /awareness of environment or AES						
Engagement with advice and training						
Trust between facilitator and members						
Trust between peers						
Social interaction						
Confidence						
Ability to implement environmental actions						
Ownership of addressing environmental issues						
Information and Knowledge sharing						
Motivation						
Collaborative working						
Well-being/physical and mental health						

28. What are the most important enabling factors for achieving the group goals, and why? (peer pressure, support from peers, external funding, the facilitator, pre-existing network, the training etc.)

Enabling factors Score	Score 0 Not relevant 1 Not important 2 Somewhat important 3 Very important				Details
	0	1	2	3	
Peer pressure					
Support from peers					
External funding					
The facilitator					
Pre-existing network					
The training					
Collaborative working					
Other 1 (specify)					
Other 2 (specify)					
Other 3 (specify)					

29. How and why do you think the facilitation role is important?

30. Has the wider community been involved in group activity,

	Tick	
YES	☐	GO TO Q31
NO	☐	GO TO Q32

31. How were they involved? (eg. they've attended events, been involved in decision-making, done volunteering, etc.)

32. What have been the impacts of wider community being involved?

35 a). Impact on the wider community:

35 b). Impact to land managers from being involved in the wider community:

Section 5: Reflections on lessons learnt and further improvement

- 33. List up to 3 positive outcomes delivered by the Facilitation Fund group that would not have been achieved without CSFF funding or if farmers take environmental actions individually?**

- 34. Are these outcomes likely to be self-sustaining or to require continuous support after Facilitation Fund ends and why?**

- 35. a). What has worked well for your facilitation group to achieve its objectives?**

- b). What has not worked for your facilitation group to achieve its objectives?**

- 36. What aspect of the group/set up of Facilitation Fund needs most improvement?**

- 37. If you have any suggestions which could improve the future effectiveness of an initiative such as the Facilitation Fund, please give details.**

LAND MANAGER INTERVIEW

The Fera/ADAS consortium has been commissioned by Defra and Natural England to conduct a telephone survey of members involved in forming and operating the Countryside Stewardship (CS) Facilitation Fund groups.

The survey is part of a larger study to collect evidence on how well the partnership approach is working to deliver shared environmental outcomes and particularly the outcomes that go beyond what could be delivered by individual holdings.

The discussion today will take no longer than one hour and will focus on your interaction with the Facilitation Fund and the impacts you think it has had to you and your farm. Your participation in this interview is voluntary. If there are any questions you prefer not to answer, please just let me know.

In order that we can capture the full detail of what you tell us today, we would like to ask your permission to record the discussion. The recording will be stored securely at ADAS. It is expected that the audio will only be used by the research team to ensure accuracy in reporting. Are you happy for the discussion to be audio-recorded today?

You and your interaction with the Facilitation Fund

1. Please can you tell me about your farm?
 - a. Farm type
 - b. Farm size
 - c. Others involved on the farm
2. Can you tell me how you found out about the Facilitation Fund group?
 - a. From whom?
 - b. When?
3. What encouraged you to join the Facilitation Fund group?
 - a. Have you been part of other community groups previously?
4. Thinking about the priorities of the group are you aware of them?
5. Were you involved with setting the priorities? How?
6. Do you think they are the right priorities?
7. What opportunity do you think you have for changing or updating them?
8. What do you think are the biggest challenges to meeting the aims of your group and how can these be overcome?
9. Thinking about the group's activities (meetings/events) what types of activity meetings or events have you attended as part of the group?
 - a. What format has the activity used (farm walk/outdoor demonstration, indoor classroom)?
 - b. What subjects or topic areas have been covered?
 - c. were you part of delivering any of these events? (used their farm for a farm walk, standing up and talking, delivering a presentation/demonstration)
10. What have you enjoyed most about taking part in these activities?
 - a. Number of events

- b. Type of event
 - c. Content of event
 - d. Deliverer.
11. What have you enjoyed least about taking part in these activities?
- a. Is there anything that hasn't been covered that you would have liked to attend?
 - b. Number of events
 - c. Type of events
 - d. Content of events
 - e. Deliverer.

Impacts of being part of the Facilitation Group

12. What do you think you have been the impacts of by being part of the Facilitation Fund group?
13. What do you think the impacts have been on you and your farm?
- a. Environmental impacts
 - b. Economic impacts
 - c. Social impacts
14. What kind of changes have you made to the way that you manage your land as a result of being in a Facilitation Fund group?
- a. Why? (If it was due to training received please tell us about the event)
 - b. How have these changes helped to meet group priorities?
15. Has being a member of [their group] changed your involvement with Countryside Stewardship?
- a. Decision to apply
 - b. CS Options chosen
16. How has being a member of a Facilitation Fund group changed how you make decisions on your farm?
- a. Where you get information from?
 - b. Who you speak to?
 - c. How confident you feel making decisions?
17. Can you tell me about an example of where you have used the information gained for the attendance of an event on your farm?
18. What would you have done without the information from the Facilitation Fund Group?
- a. Found alternative information?
 - b. Not changed the practice?
19. Thinking about the impact of the group on the wider community, what do you think have been the main impacts?
- a. Has it had an impact on job creation?
 - b. Has it had an impact on skills and expertise?
 - c. Has it had an impact on community spirit/ sharing information?
 - d. Has it had an impact on confidence?
 - e. Has it had an impact on wellbeing?
20. Is there anything that you would have liked the facilitator to have provided to you or the group?

- a. 1:1 advice
- b. Grants

21. If there was no funded facilitator, do you think this group would carry on?

- a. Meeting informally
- b. Putting on training/activities

Thank you for your time today. It is expected that a high level report will be published about this research, with a more full publication after the follow up research has been completed. Would you like to be kept on the mailing list for these publications?

Yes		No	
-----	--	----	--

Finally, would you be happy for one of the project administrators to contact you for any clarification on the details we have spoken about today?

Yes		No	
-----	--	----	--

APPENDIX 8 - FACILITATION FUND PHASE 2 CASE STUDIES

Introduction

The current Agri-Environment Scheme (AES) in England, Countryside Stewardship (CS) was launched in March 2015. It brings together a range of environmental protection and enhancement measures to address biodiversity, resource protection, historic environment, landscape and climate change objectives. The CS Facilitation Fund (CSFF) provides funding for individuals or organisations to bring farmers, foresters and other land managers together to work cooperatively with the aim to deliver co-ordinated land management and environmental improvements at the landscape scale, within a defined area. The priority for this partnership and collective approach is to deliver shared local environmental outcomes that go beyond what could be delivered by individual holdings acting in isolation. This model delivers both against the need for understanding of local environmental issues/constraints and landowner priorities and for the provision of quality advice which is consistently valued by agreement holders. Since the CSFF launch, 98 groups have been established with the number of successful applications increasing each year. Group membership has also increased over time.

As a novel element to AES, it is important to understand the performance of the CSFF and to further develop or refine processes and guidance to improve performance. The aim of this study was to contribute to the evaluation of the success of the Facilitation Fund, with respect to both quantitative and social capital outcomes. It was a desk study which represents one stage in the evaluation of the Facilitation Fund. The full project report is published as: Facilitation Fund Phase 2 Evaluation Final Report, 2020, Jones N, Cao Y, Adamson H, Lewis-Reddy L, Crowe A, Hockridge, B. A further evaluation which addresses the impact against wider natural capital objectives and a more detailed assessment of the social capital outcomes is currently in progress.

Objectives

The aims of this study were to evaluate the success of the Facilitation Fund, with respect to both environmental and social capital outcomes and to develop a framework for monitoring which can be used to assess future group activity. The work includes assessment of all groups funded under the first three national rounds (2015 – 2017) and under the 2017 flood-specific application window. It is important to note that only limited information was available for some of the groups formed more recently.

Specific objectives of the study were:

- To review and test the proposed M&E framework and indicators
- Analyse Agri-Environment Scheme (AES) option uptake in terms of:
 - alignment with CS priorities, water quality and flood risk
 - spatial coherence for biodiversity
- Explore the socio-economic impact of the Facilitation Fund
- Develop 28 case studies of facilitated groups to illustrate the impacts assessed as part of this study at the group level.

Scope and limitations of case study reports

Case study reports presented here have been developed to bring together the different elements of the project at the group level to give a high level illustration of the group's context, range of activity, outputs and impacts. Information is derived from **desk-based assessments** focusing on **facilitator feedback and analysis of AES uptake** which was based on a data joining exercise and a cut of AES data from spring 2019 (see Mapping and AES uptake sections later in this document and the full project report for further detail). **AES uptake is only one indicator of environmental impacts** and is limited by many factors such as the ability of group members to enter an AES or the availability of relevant options (e.g. across different agreement Tiers). In addition, without the full context of features in the

wider landscape and more detail on group objectives than is usually available, analysis of AES uptake can only give an indication of possible environmental impacts or relevance. Further detail around non-AES activity and feature context was beyond the scope of this work. In addition, less tangible outcomes relating to knowledge transfer and less specific collaborative activity were outside the scope.

Case study information is presented under the following headings:

- **Key learning points**
- **The group** – size, origins, priorities, facilitator experience
- **Option uptake** – AES uptake mapped by option group and with reference to objectives, connectivity for biodiversity resources and, for the more detailed case studies, the coincidence of relevant options with water quality and flood risk areas
- **Training events** – type, objectives and attendance
- **Success and barriers** – derived from the facilitator survey, plus interviews with land managers for the ten more detailed case studies.

An online survey of facilitators was undertaken in order to gain an insight into their perspective of group processes and their perceived outcomes and impacts of the group. Responses were received from 67 of the 98 facilitators.

The survey was based around five themes:

- Information about the group
- Facilitator experience
- Group activities and outcomes
- Group achievements
- Reflections on lessons learnt and further improvements.

Individual summary reports have been developed for 28 groups, selected from the group of 67 who responded to this questionnaire. Groups were chosen to reflect the:

- range of geographic regions across England
- different primary objectives of the group
- facilitator affiliation
- length of time receiving funding under the Facilitation Fund.

For ten groups, further information has been derived from i. a telephone interview with a randomly selected land manager member of the group and ii. catchment level analysis of water quality and flood risks.

Land manager interviews were carried out to include an alternative viewpoint on group priorities and activities. Facilitators were asked to provide the contact details of a number of group members, from which the researchers chose group members to interview at random. The inclusion of interviews has been invaluable in contributing to the narrative of the group and providing a more holistic perspective on the groups' successes. Where direct quotes from interviews have been used in the case studies, these are presented in blue italics.

Explanation of outputs is summarised below and full explanation of data analyses is in the final project report. Due to different data sources, there are some inconsistencies in data presented and these data cannot expect to fully reflect knowledge of the group itself. Full detail of data analysis/interpretation and reporting across all groups is available in the project final report.

Data sources and summary of analyses

Information on **number of agreements** is derived from Facilitation Fund (CSFF) data compiled by facilitators and supplied by NE in spring 2019.

Data was collated from **group documentation** in spring 2019 to provide information on various group characteristics (e.g. funding term and value).

An online **survey of facilitators** was carried out in July/August of 2019 and sought feedback on group characteristics, objectives, activity and impact. It combined closed and free-text questions)

A semi-structured **interview with a land manager** was conducted by telephone in September/October 2019. A land manager was randomly selected from each of ten groups. This information gives qualitative information and context.

Mapping of groups was based on agreement numbers/SBIs supplied by facilitators to NE (spring 2019) joined with ES and CS data extracted from NE/Defra databases in May 2019. This approach will not align exactly with group information because: i. there is a time lag associated with adding new AES to Defra's AES database and ii. as ES agreements expire, they are removed from the ES database. In addition, the geographic range of parcels associated with the group **cannot be precisely linked** through a data derived exercise because information is based on land associated with AES and SBI numbers which can extend beyond the group's envelope of activity. Outlying parcels were removed based on a national scale rulebase, but may not be exactly consistent with activity on the ground.

AES uptake data represents CS and ES data joined for the mapping exercise. ES options converted to CS equivalents through a table supplied by NE. Where units are labelled 'variable' this indicates that units of measurement were different in CS and ES, therefore 'quantity' values are not reported. Options are presented where they were **present on c. 20% of group holdings** in agreement. The range of environmental outcomes associated with a single option is often wide-ranging and complex and it was beyond the scope of this desk exercise to assess uptake against environmental priorities in detail. Uptake is therefore presented to illustrate options which are relatively common across agreements in the group and these are variously cross-referenced to summary group objectives to illustrate alignment at a high level.

Connectivity of AES options was assessed for different biodiversity/resource combinations:

- Arable plants
- Hares
- Nesting boundary
- Nesting field
- Pollinator foraging
- Summer granivores
- Summer waders
- Winter granivores
- Winter waders

For each resource category, AES options which contribute to providing resources were identified and the connectivity of options implemented on the ground was assessed. It must be noted that the analysis only included features and activity included in AES rather than present in the wider landscape.

Outputs are based on **comparison** of the group vs repeated selection of **AES options** for an uncoordinated group of the same size within the Facilitation Fund Group Area within the relevant NCA(s) (see final report for full details of analysis). Because the output assesses group uptake relative to uptake in the wider landscape, it is possible for group activity to have a positive effect on connectivity which is not captured by this analysis because similar activity is implemented in the wider landscape. The analysis is structured to indicate added benefit from the CSFF as opposed to benefits

from CS as a whole. Analysis was repeated at different scales and interpreted in relation to functional range sizes. In the tables presented here:

‘0’ = either appropriate options were not present or all distances were greater than the threshold

‘-’ = group AES are less connected than expected

‘m’ = group AES has the same level of connectivity as expected

‘+’ = group AES has greater connectivity than expected but not statistically significant

‘++’ = group AES has greater connectivity than expected that is statistically significant.

It is important to recognise that this analysis **includes only AES options in current agreements, where agreement references supplied by facilitators could be matched with a cut of Defra’s ES and CS databases extracted in spring 2019**. At group formation, a larger number of Environmental Stewardship agreements may have been current, but any which expired between group formation and spring 2019 will not be captured here.

In addition, ES agreements, by definition, were in place before the group was formed. Therefore the alignment of uptake with group objectives may not fully reflect the group’s potential to deliver landscape-scale action in the future. This will be manifested in new AES as previous agreements established prior to the facilitation activity are replaced over time.

Water quality and flood risk were assessed by creating risk maps based on existing spatial datasets and understanding of risk factors. Study areas were selected by mapping the areas within option for each of the Facilitation Fund agreements. The catchment areas that the options fall within were selected, including some catchments upstream or downstream of these catchments where relevant. AES options relevant to each risk and could contribute to the mitigation of the risk, are mapped against heatmaps showing the relative risk score for flooding and water quality.