

## Resilient Dairy 'Social Innovation Lab' summary report

24<sup>th</sup> October 2018, Tebay Services Hotel



## Introduction

This report summarises the approach taken to the ‘Social Innovation Lab’ (SIL) led by Newcastle University, supported by project partners, University of Leeds, University of Liverpool, 3Keel, Nestle and First Milk, which was held on 24<sup>th</sup> October 2018 at Tebay Services Hotel, Cumbria. Initial findings will be presented to Defra in December 2018 and to Scottish Government in March 2019, and subsequently written up for publication in international peer-reviewed journals.

## Aim and Method

The aim of the Social Innovation Lab was to inform post-Brexit Government policy and future iterations of the Farmed Environment Plan in Cumbria by:

- Discussing the latest research findings from the Resilient Dairy Landscapes research project and other new research.
- Discussing Plan options, including innovative ways of implementing existing scheme options more effectively, and the identification of potential future scheme options from participants and research.
- Discussing how innovation in Landscape Enterprise Networks in Cumbria might inform the development of post-Brexit policy.
- Feeding into the development of a policy brief to be presented to key teams developing post-Brexit agricultural policy in December 2018.

## Method

### *Social Innovation Labs*

Why a “Social Innovation Lab”? A Social Innovation Lab is a workshop with a focus on generating and discussing new ideas (innovations), drawing ideas from participants (the social part) as well as the latest research, that are designed to benefit local people and other stakeholders (the social part again). In an evidence-based policy world, researchers often get privileged access to policy-makers, but the Social Innovation Lab is designed to enable groups of stakeholders and researchers to integrate the most innovative, robust and relevant ideas, wherever and whoever they come from, to present to policy-makers.

### *Social Innovation Lab design*

The SIL was designed as a half-day workshop as follows:

**Session 1:** The aims and structure of the workshop were introduced by Professor Mark Reed and informed consent obtained from participants to use information they provided within the SIL anonymously for research purposes. Following the introduction, two presentations were given by the wider project team with the intention of providing background information regarding the Resilient Dairy Landscapes Project and preliminary findings from the research.

- Landscape Enterprise Networks and the Farmed Environment Plan in Cumbria (Robin Sundaram and Tom Curtis).
- New research evidence on animal disease, effectiveness of agri-environment interventions and post-Brexit agricultural policy (Diana Williams and Mark Reed).

Participants were then given the opportunity to share knowledge and discuss what they had heard within the plenary session.

**Session 2 (parallel):** Data was elicited using established participatory methods to identify innovations at three levels: i) new ways of implementing existing on-farm interventions in Cumbria; ii) new potential on-farm interventions; and iii) new options for national post-Brexit policy based on experience in Cumbria. Given the range of interests of stakeholders invited to the workshop, discussions were held in two parallel sessions, with stakeholders more interested in farm-level interventions in Cumbria identifying innovations at the first two levels, and those with more national interests identifying innovations at the third, national level.

**Follow-up:** The event forms the basis of the first round of a Delphi expert elicitation exercise. Delphis are a convenient and economical way of facilitating interaction and dialogue between experts who are geographically dispersed. Delphi typically involve iterate surveys being presented to experts with controlled feedback between rounds and an equal weighting of final round responses to produce a group judgement (Kendall et al., 2018, Linsone and Turoff). This report summarises the findings of the workshop and will inform the development of a short questionnaire/interview protocol. This will be sent/discussed with participants (those that agreed to be re-contacted) and those who were invited but could not attend. The aim of the Delphi will be to enhance the robustness of the outputs for decision-makers in Cumbria and in national policy by further evaluating and refining the innovations explored in Social Innovation Lab as well as the evidence and recommendations included within the policy briefs that will be presented to Defra in December 2018 and to Scottish Government in March 2019.

## Participants

Thirty-four participants representing a range of relevant stakeholders identified by project partners 3Keel and First Milk were invited to attend *via* email sent 18<sup>th</sup> September 2018 (Appendix 1), a follow up email was sent two weeks after the initial invite. The invited stakeholders included representatives from Nestle UK, First Milk, United Utilities, the National Trust, farmers from the Eden valley catchment as well as the representatives from the Resilient Dairy Landscapes consortium. In total 23 participants attended the workshop.

PARTICIPANT NUMBER	NAME	ORGANISATIONAL AFFILIATION
1	Mark Reed	Newcastle University
2	Diana Williams	University of Liverpool
3	Pippa Chapman	University of Leeds
4	Guy Ziv	University of Leeds
5	Tom Curtis	3 Keel
6	Amanda Skeldon	BITC
7	Jenny Gilroy	Newcastle University
8	Gavin Stewart	Newcastle University
9	Helen Kendall	Newcastle University
10	Andrew Griffiths	Nestle UK

11	Robin Sundaram	Nestle UK
12	Lee Truelove	First Milk
13	Ashley Stamper	First Milk
14	Lynda Kindleysides	Farmer
15	Robert Barrow	Farmer
16	William Moscrop	Farmer
17	Steve Dunning	Farmer
18	Alan Baxter	Farmer
19	George Wharton	Farmer
20	Chris Ellis	Farmer
21	John Harrison	Farmer
22	Bruce Coultard	Farmer
23	Andrew Smith	Farmer

## Summary: Plenary discussion

The UK dairy sector is recognised to be under pressure and there has been a considerable reduction in viable dairy farms in recent years, due in part to pressures from the costs of production and low or negative margins. This has driven many dairy farms out of business. Farmers identified there to be discrepancies in the provision of capital grants (e.g. for slurry storage) depending on geographical location of farms, with a greater availability of grants for Scottish and Welsh farmers compared to English farmers. It was suggested that a policy brief should recommend that to ensure the resilience of the dairy sector, post-Brexit policy creates a more level playing field between funding for farming in different UK countries.

### *Defining resilience*

An industry participant asked how resilience in the dairy sector was being defined in the project. The project is adopting definitions developed by the Global Food Security programme, which include four ways of viewing resilience as: robustness (the strength to prevent or resist negative change), bounce-back (the speed and extent to which a farm business can recover its core functions and services/outcomes after a negative change), adaptability (the ability of a farm business to re-organise the way it functions to maintain core services/outcomes despite negative change) and transformation (the extent to which a farm business can completely change its function to deliver completely new services/outcomes that are valued as much as (or more than) the outcomes that were previously produced).

Competing agendas were identified between the financial sector and food industry as backers and benefactors of the industry and those of government (DEFRA). For the financial sector and food industry, central to resilience and sustainability was guaranteed food supplies that were ensured by large scale profitable farming businesses. The financial service industry and food industry were considered to hold short-term perspectives on the resilience of the dairy sector. For Government and the farming participants, resilience was defined as ensuring the long-term productivity of the landscape in order to fulfil demand in the short-term but also to protect the long-term future of dairy farming. Current protection of the landscape was widely accepted as essential to the resilience of the dairy sector and agricultural production more generally.

### *The role of Landscape Enterprise Networks (LENs)*

The Landscape Enterprise Networks (LENs) approach was identified, and supported, as a mechanism for delivering a range of environmental services *via* on farm interventions for both the good of the environment and society but also recognised to be a crucial mechanism through which gatekeepers of landscapes are able to profit directly from the landscape by providing a range of services (in addition to products derived from the landscape) that are essential to business needs. Businesses are recognising a need to adapt the way that secures resources from the landscape. LENs was recognised as a mechanism for consolidating business interests in a given landscape and brokering relationships between investors (businesses) and gatekeepers of those landscapes (typically, although not always, farmers). Participants recognised the long-term needs of businesses in landscapes as providers of essential business services, however it was also noted that often schemes lack longevity, whilst the changes to landscapes required to fulfil business needs or scheme requirements typically are permanent.

## Summary Parallel 1: New ideas for farming with nature

Discussion in parallel session 1 was centred around four key questions and a draft policy brief (Appendix 2). A summary of the discussions and policy recommendations are presented in response to each question (for notes taken during discussion see Appendix 4).

1. What impacts do you think dairy farming has on the environment?
2. Which options from the Nestle Scheme have you chosen and why? What positive impacts do you think the options you have chosen will have on the 1) environment, 2) your farming practices, 3) your farm?
3. What other interventions or approaches could be considered in the Plan in Cumbria in future years?
4. What can post-Brexit agricultural policy learn from experience with the Farmed Environment Plan in Cumbria?

### *Environmental impacts of dairy farming*

The group considered the positive and negative impacts of dairy farming on the environment. Positive impacts mentioned included carefully managed landscapes that were aesthetically pleasing and provided recreational and tourism opportunities in the local area. Dairy farming provided high quality, high welfare produce to the local food supply. Dairy farmers in the Cumbria catchment area were identified to be passionate about dairy farming, open to innovation and willing to invest.

Negative impacts were associated with the volume of slurry as a waste product. Concerns were raised regarding the effectiveness of Nitrate Vulnerable Zone (NVZ) legislation and the inflexibility of this legislation that resulted in the uneven spread of slurry at the end of close periods when farmers rushed to spread regardless of whether the weather conditions were favourable to do so. This also resulted in opportunities to spread that were missed when weather conditions were favourable. Moreover, discrepancies in how NVZ were defined by different agencies was noted, with the Environment Agency using catchment measures and DEFRA defining these based on parish data, resulting in farms being subject to NVZ legislation that potentially do not meet the criteria and *vice versa*. In addition, animal welfare standards and disease management of dairy cows, particularly of housed cows, was recognised to fall behind other sectors.

### *Options adopted*

The majority of farmers within the group had opted for interventions that fell within the remit of 'habitat enhancement' by planting hedges, although it was recognised by all that there was a limit to the amount of hedges that could be planted. Positive impacts of this intervention were noted particularly in terms of the number of bird species, including a number of new species on the landscape. Fencing watercourses, dry stone wall repair and soil management practices were also noted. One farmer reported having conducted a tree planting community engagement activity on farm which was publicised and supported by Nestle, however others were less enthusiastic about this option as they felt it required considerable work to ensure that the farm was presentable to external visitors. Consensus amongst the farmers was that they found the interventions relatively easy to adopt and/or were now receiving financial support for activities that they already engaged in.

### *Continuation of the scheme*

The interventions included within the scheme were not considered to add additional costs or workload to farmers' current practice and the flexibility of the scheme and ease of evidencing activities was a particular attraction. However, they recognised limitations of the scheme options in their current format and noted some shortcomings. Primarily, the scheme was noted to reflect the calendar year and in the case of hedge planting in particular, farmers felt there to be a rush to receive and plant in late December. Bare root stock plants are noted to be the most suitable plants to use for hedge planting and they are not available until late November when roots are dormant for lifting which results in the earliest delivery dates being in late December. Whilst farmers are able to purchase hedge plants independently, these would not be discounted. With plants discounted by 80% from the Woodland Trust as part of the Nestle/First Milk scheme, this was a large incentive to receive and plant at this time. As the optimum time to plant ranges from December to March, farmers requested that if possible deliveries of plant be delayed until the beginning of the New Year which still fell within optimum planting periods, but also respected the needs of farmers and their families over the festive period. Farmers believed that the involvement of farmers in designing the Nestle scheme had been critical to its success and they had felt included throughout the process. A number of scheme extension options were discussed which included:

- Maintain soil drainage in clay soil to prevent water logging and improve pasture productivity. Repairs to existing large stone drains located throughout fields that currently require considerable annual maintenance.
- Slurry storage and spreading:
  - *Storage*: Improvements to slurry storage (some farms currently have no access to slurry storage) including creation of slurry storage facilities, improving existing slurry storage facilities and the creation of larger slurry storage facilities, means of liquid and solids separation through two different storage facilities and covering options for slurry storage facilities and manure heaps. Improvements to yard run-off to ensure that this goes into slurry storage.
  - *Spreading*: mechanisms for spreading slurry (for example, by injection, trailing shoe or trailing hose).
- Trailing alternative fertilisers (organic based Nitrogen added) and taking into account manure applications when applying inorganic fertiliser.
- Cattle disease monitoring methods.

- Restoration of traditional farm buildings.
- Coppicing ancient woodland management (noted to require a long-term plan).
- Grass-herbal leys for productivity and soil health, such as soil structure.

All of these scheme options were considered acceptable and practical by farming participants, although it was recognised that some reflected long-term interventions that required considerable capital grants to improve farm infrastructure, whilst others reflected less fundamental changes. For example, it was noted that the current scheme options do not currently target emissions of NH<sub>3</sub> or GHGs to the atmosphere and, in order to meet incoming legislation and the UKs 2030 emissions targets, changes to the way that slurry is stored and used could represent an important potential future scheme option. Farmers noted the need to improve the ways in which slurry was stored on farm. This included the need for larger slurry storage facilities, means of safely covering slurry stores and changes to the way in which slurry is spread and incorporated into soils. However, it was noted that interventions of this nature would require considerable investment. Farmers agreed that roofing of yards would be an additional measure that could help to reduce emissions from dairy farming although, this was not considered practical due to the need to pass farm traffic through yard areas.

Easier and less expensive to implement interventions included coppicing ancient woodland management and grass-herbal leys for productivity and soil health, although long-term planning was suggested to ensure the effectiveness of these interventions.

Initial responses from those designing the Farmed Environment Plan was that suggestions linked to drainage would, as farmers suggested, likely increase productivity, but this may come at the expense of environmental outcomes. Assessing these outcomes could add an additional administrative burden to the approach. On the other hand, the inclusion of yard improvement work was seen as important, and the scheme was starting to look at how it might be able to help with business planning to access grants (a number of farmers can, and already are, accessing help from Catchment Sensitive Farming Grants). Suggestions around alternative fertilisers (from urea-based fertilisers to ammonium nitrate, which have lower emissions) could fit well with farmers who complete a nutritional plan (which is already part of the programme). The final three suggestions are all longer-term in nature, requiring minimum 5-year commitment to demonstrate viability and actually deliver. The Farmed Environment Plan has tentatively agreed that this approach needs to be explored ready for 2020 delivery and are exploring the potential to get buy in from farmers, First Milk and Nestle.

### *Lessons*

It was noted that not many farmers partake in Environmental Stewardship schemes, a small proportion of the group had been part of the Countryside Stewardship Scheme (CSS) prior to the Nestle scheme, however many had withdrawn from this because the options were considered overly complex and difficult to obtain. Farmers felt the success of the Nestle scheme was, in part, due to the level of engagement farmers had had in the design process. The uncomplicated and flexible nature of the scheme and scheme options were appreciated by farmers and implementing the scheme options were not considered to carry significant additional financial or labour costs.

## Summary Parallel 2:

### *Compatibility of the new Agriculture Bill with World Trade Organisation rules*

Draft findings from a second policy brief (Appendix 3) were presented, including concerns that the Agriculture Bill (England) may not be compliant with WTO regulations due to its weakening of the link between payments and active farmers. Three potential solutions were proposed by participants for consideration in a revised policy brief which could propose the following alternative amendments to the Bill:

1. Ensure non-farming entities work through farmers as sub-contractors or similar to ensure funding goes via active farmers.
2. Do not allow funding to be given to non-farming entities but allow payments to be made to inactive farmers.
3. Do not allow funding for non-farming entities or inactive farmers (i.e. retain status quo).

### *Special case for public funding of marginal farming landscapes*

Participants believed that a special case should be made for supporting agriculture in less favoured areas such as the uplands of Cumbria based on the significant public goods they provide and the high risk of bankruptcy associated with even modest reductions in public funding for many more marginal farms. While the case for public support may be stronger in peatlands, participants stressed a number of reasons why non-peat marginal farms should retain public funding at levels similar to the present day. These included the amenity value of managed landscapes, although there was robust discussion over the extent to which publics want to retain current landscapes or might appreciate landscapes reverting to scrub and forest. Participants stressed the need to maintain UK food production post-Brexit, including from more marginal farming environments, rather than offshoring environmental problems *via* cheap imports. This has the added benefit of retaining well understood, short supply chains rather than relying on longer, more opaque overseas supply chains. *“Nothing holds the soil down like grass”*, quipped one dairy farmer, concerned about trends towards vegetarianism and re-wilding.

### *Feedback on the LENS approach*

Farmers need reliability of long term income post-Brexit and the LENS approach may be able to contribute to this by diversifying income streams. The Peatland Code gives farmers 30 year contracts, which can be attractive to some but may also impact on land prices if a seller does not want to take on the responsibilities associated with these long-term contracts.

*“There’s them that want to farm, and them that want to rent it out and take the payments”*, explained one dairy farmer. Inactive farmers have more time to find out about initiatives like LENS and make deals to make them richer *“I’d rather just farm where there’s enough profit in what I produce as a farmer but you incorporate [LENS] as part of your business”*. Farmers are adaptable and engage well in practical schemes like LENS and its Farmed Environment Plan compared to administrative schemes. But the business of farming is changing. People used to say that *“you don’t get a wage but the farm will be yours one day - that’s how it used to be”*.

Nestle said there was evidence that the LENS approach is working in Cumbria because farmers have gone out of milk at a lower rate than the rest of the sector, and Nestle/First Milk have not lost a single farmer to a competitor since the scheme started. One of the dairy farmers explained how he felt proud to be a Nestle producer, and said that he was welcome to visit the Dalton factory and could talk to Nestle's Milk Manager whenever he wanted. If the LENS approach can create that sort of pride in farmers for what they do, then this is a big benefit. Nestle explained that LENS is able to pay active farmers rather than landowners, getting around issues between landowners and tenants that have existed with previous schemes. The LENS approach moves from paying for assets (natural capital) to paying farmers for services rendered.

Dairy farmers have not been participating in agri-environment schemes much to date and this is unlikely to change significantly post-Brexit. However, the LENS scheme is co-developed with and liked by dairy farmers. An extension of the LENS approach could drive wider participation in agri-environment work across the dairy sector post-Brexit.

## Actions

The following actions were agreed:

- Summarise new on-farm interventions deemed acceptable to farmers from Parallel Session 1 and discuss potential for integration with Farmed Environment Plan with Game and Wildlife Conservation Trust, Nestle and First Milk.
- Based on discussion from Parallel Session 1 and the plenary session, update LENS policy brief with:
  - Suggestions for overcoming problems with World Trade Organisation compliance
  - A special case for public funding of marginal farming landscapes
  - Potential benefits of extending LENS post-Brexit
  - Recommendation that post-Brexit policy creates a more level playing field between funding for farming in different UK countries to ensure the resilience of the dairy sector.
- Consider a workshop and paper comparing LENS approach to a place-based approach Payment for Ecosystem Services and the Natural Capital Protocol.
- Circulate policy briefs:
  - With evidence showing need for precautionary approach to changing subsidies in peatlands.
  - "Brexit: how will UK agriculture fare when we leave the EU?"
- Investigate availability of secondary data on impact of slurry storage grants in Scotland versus England (where there are no grants).

## Appendix 2: Draft policy brief 1

# What is the evidence that public money leads to public goods delivery from agri-environment schemes?

## The research

Researchers have assessed the evidence base for a number of agri-environment scheme options that could be included in post-Brexit Environmental Land Management schemes, asking whether they deliver on 'public money for public goods'. Two teams of researchers have completed reviews of 13 scheme options, considering peer-reviewed evidence that these options give rise to specific claimed public goods:

- Scheme options: fencing waterways from livestock, soil loosening, tree planting on floodplains, conversion of grass to woodland, conversion of arable to woodland, buffer strips, agroforestry, tillage practices, organic amendments to arable land, hedges, cover crops, over-winter stubble, and leys.
- Public goods evaluated were: water quality (including N and P concentrations, suspended sediment, *E. coli*), flood risk alleviation (based on changes in channel discharge, soil bulk density, aggregate stability, porosity, infiltration rate and hydraulic conductivity), climate change mitigation (carbon stocks) and soil health (based on papers using earthworm numbers as an indicator).
- In addition, the impact on yields have been analysed to identify potential trade-offs.

The research was conducted by the Resilient Dairy Landscapes project (funded by the Global Food Security Programme, Resilience of the UK Food System in a Global Context) and Yorkshire Integrated Catchment Solutions Programme (iCASP, funded by the Natural Environment Research Council).

## Key findings

The following table lists scheme options for which there was robust evidence for specific public goods, based on certain well-studied indicators.

Scheme option	Public good (indicator used in brackets)
Watercourse fencing to exclude livestock	Water quality (led to a reduction in P and <i>E. Coli</i> )
Buffer strips in arable systems	Soil health (soil organic carbon, bulk density, aggregate stability)
Converting arable land to woodland	Climate change mitigation (soil carbon stock increases)
Grass-clover leys in arable rotation	Climate change mitigation (soil carbon)

Minimal tillage	Soil health (bulk density and hydraulic conductivity)
Hedges in arable land	Climate change mitigation (soil carbon)
Organic amendments	Climate (soil carbon) and soil health (aggregate stability, earthworms) BUT could lead to reductions in water quality
Converting arable land to woodland	Climate (soil carbon)

For other scheme options and public goods, evidence was mixed or weak and it was not possible to assess the magnitude or rate of change, requiring more research. For example:

- Overall cover crops maintain soil health in the short term (less than 10 years) and may improve soil health in the long term (greater than 10 years), but these effects were highly variable between different sites.
- Organic amendments increase soil organic carbon stock, aggregate stability and earthworm population. However, some organic amendments could lead to the build-up of potential pollutants within the soil which could end up in water courses and affect yield, such as phosphorus and pharmaceuticals.
- Conservation tillage can significantly improve soil health. However, the effects of conservation tillage on some soil health indicators, such as bulk density and hydraulic conductivity, can vary depending on the type of conservation tillage and site characteristics.
- Planting trees on floodplains reduces channel discharge<sup>1</sup>, but the effect was variable<sup>2</sup>, the potential for confounding was high, and publication bias is strongly suspected<sup>3</sup>. Due to the lack of direct evidence the overall strength of evidence is low, indicating high uncertainty.

## Evidence gaps

The following gaps in evidence were identified:

- Very few studies have compared soil health indicators of buffer strips in and around grass fields.
- Agroforestry may improve soil health but more data is urgently needed from temperate agroforestry systems to draw reliable conclusions, as most studies from tropical and sub-tropical areas
- There is limited information on the impacts on soil health of planting agricultural land with deciduous trees, as 66% of studies were related to coniferous afforestation.
- In contrast to our understanding of above-ground hedgerow function, little is known about how hedgerows margins affect the below-ground soil system and soil health.
- There is limited research on the effects of introducing grass leys into arable rotation on soil aggregate stability, bulk density and infiltration and thus how they mitigate flooding

## Limitations

- There is a high degree of uncertainty over the effect of some interventions on the specific public benefits for which we assessed evidence. As a result, for some interventions there is

<sup>1</sup> Standardised mean difference -0.35, 95%CI, -0.71 to 0.00

<sup>2</sup> I<sup>2</sup> = 81.91%

<sup>3</sup> Egger Test z = 3.0568, p = 0.002



not sufficient evidence to determine whether or not these options deliver public goods at present, pending further research and trials.

- There are a number of sources of uncertainty, for example the time taken for many public goods to arise from changes in land management, and the different ways in which scheme options are implemented in very different biophysical contexts.
- Most studies did not include information on the impact of the intervention on crop yield. In the iCASP review only 6 out of 240 studies included information on yield. For soil loosening, where yield data were available there was not a statistically significant impact on pasture yield<sup>4</sup>.
- Most studies are conducted at plot level and few are at catchment scales.
- A lack of standardised methodologies for collecting or reporting data makes it difficult to create robust syntheses for decision-makers in policy and practice.

## Policy options

### 1. Using public money for public goods

- Post-Brexit Environmental Land Management scheme options may be restricted to a narrow range of options for which robust evidence exists, expanding as sufficiently robust evidence becomes available to show that additional scheme options are likely to deliver public benefits.
- Funding could be prioritised towards scheme options with the best evidence for delivering public goods via an 'evidence-based premium' for the scheme options we know are most likely to deliver multiple public goods.
- Code of good practices could be made part of a future scheme, such as the recent DEFRA Code of Good Agricultural Practice (COGAP) for reducing ammonia emissions, providing simple, evidence-based ways to reduce NH<sub>3</sub> emissions.

### 2. Generating better evidence to inform post-Brexit policy

- Government, researchers and other stakeholders should agree on core common outcomes (effects of interventions) for which data should be collected and reporting standards for environmental research in the UK, and assess the potential for developing international standards for environmental research more broadly.
- The International Union for Conservation of Nature and the British Ecological Society are planning to attempt this for peatland research in 2019 as a test case and, if successful, the approach could be widened.
- There should be a call for rapid evidence syntheses from the research community to cover a targeted range of interventions/options that farmers are likely to take up, to assess their ability to deliver multiple public goods.
- Evidence gaps highlighted in this policy brief may provide a focus for current/future research, including DEFRA-funded trials/tests and use of transition period funding.
- Identified gaps should be targeted by UKRI's existing or new research funding mechanisms, with an aim to significantly improve the evidence base by 2030.

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<sup>4</sup> 12 studies, pooled effect size -0.35; 95% CI from 1.02 to 0.31

## Further information

The Resilient Dairy Landscape project is funded by the Global Food Security's 'Resilience of the UK Food System in a Global Context' programme with support from BBSRC, ESRC, NERC and Scottish Government.

- Find out more at [www.resilientdairylandscapes.com](http://www.resilientdairylandscapes.com)
- For more information about Resilient Dairy Landscapes contact Mark Reed ([mark.reed@newcastle.ac.uk](mailto:mark.reed@newcastle.ac.uk)) or Jenny Gilroy ([jenny.gilroy@newcastle.ac.uk](mailto:jenny.gilroy@newcastle.ac.uk))

The Yorkshire Integrated Catchment Solutions Programme (iCASP) is funded by NERC.

- Find out more at: <https://icasp.org.uk>
- For more information about Resilient Dairy Landscapes contact Finn Barlow-Duncan ([F.Barlow-Duncan@leeds.ac.uk](mailto:F.Barlow-Duncan@leeds.ac.uk)) or Pippa Chapman ([P.J.Chapman@leeds.ac.uk](mailto:P.J.Chapman@leeds.ac.uk))

## Appendix 3: Draft policy brief 2

# What role for public-private partnerships to deliver public goods?

## Introduction

Place-based Payments for Ecosystem Service schemes are broadening to new land uses, habitats and services. The Woodland Carbon Code and Peatland Code already successfully source private funding public goods delivery alongside public funding. Now Landscape Enterprise Networks (LENs) are pooling funds from multiple private investors to deliver public goods across a broader range of land uses and habitats than ever before. In this policy brief we summarise existing evidence behind the LENs approach and consider the role of public-private partnerships in post-Brexit agricultural policy.

## Public money for public goods: silver lining or trap?

**Context:** England has introduced an Agriculture Bill that will replace Direct Payments based on area of land farmed, with payments for public goods. Scotland, Wales and Northern Ireland are currently running consultations and developing their own post-Brexit agricultural policies.

**The problem:** WTO regulations may limit the extent to which the vision of “public money for public goods” can be implemented in post-Brexit policy. For example, payments in England are no longer dependent on being an active land manager, making it possible for a range of bodies (such as water companies or charities) to access funding for environmental work. This may mean that payments are considered to have moved out of the “green box” of the WTO’s Agreement on Agriculture (which allows countries to make limited direct payments to support farmer incomes as long as they are not linked to production), and may meet the criteria for being considered a “specific subsidy” under the Agreement on Subsidies and Countervailing Measures. This could increase the likelihood that post-Brexit policies are disputed by other WTO member countries.

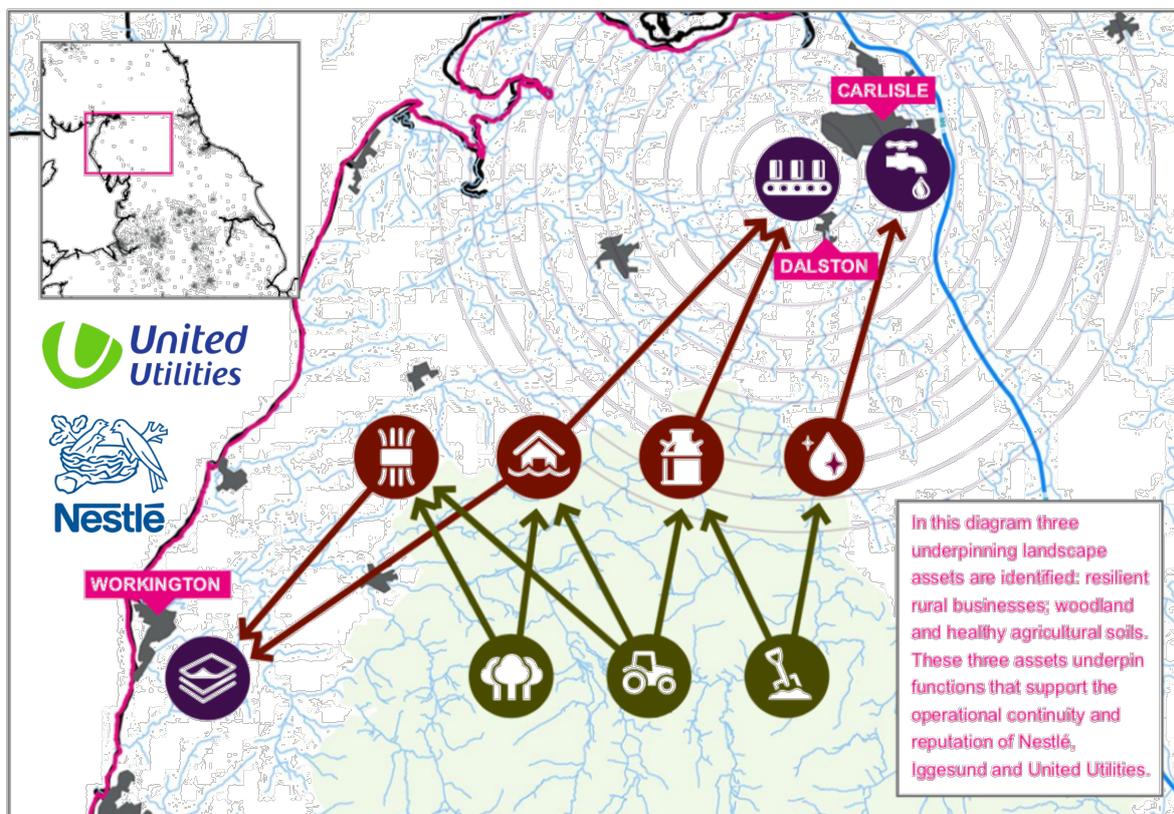
**A solution:** One way of mitigating these risks may be to provide for (and perhaps encourage) public-private partnerships that co-ordinate public funding for farmers with private funding for farmers and others to deliver a wider range of public goods than might be possible as part of a Government funded Environmental Land Management system. Such place-based schemes have already been developed for woodland and peatland management, and are now being extended to a wider range of land use systems via Landscape Enterprise Networks (LENs).

## What are Landscape Enterprise Networks?

LENs builds coalitions of businesses around shared commercial interest in how landscapes function to drive investment and innovation around strategic assets like soils, aquifers, access infrastructure, habitats and tree cover.

For example:

- Supply chains serving Nestlé’s Dalston plant (where they make their cappuccino range of products) are under threat from climate change (which will bring new animal diseases and limit water supply to dairy operations) and unsustainable agricultural practices (threatening the long-term health of soils and biodiversity)
- United Utilities share interests in improving the sustainability of agriculture in the area to enhance water quality and mitigate future water shortages
- Working with 3Keel, Business and the Community, the Game and Wildlife Conservation Trust, First Milk, the Rivers Trust, Woodland Trust and others, Nestlé and United Utilities are pooling resources to deliver landscape scale public goods that benefit their businesses
- Dairy farmers supplying Nestlé in the region can access a milk premium if they adopt measures designed to enhance public goods including animal health, welfare, water quality and biodiversity



## Do LENS deliver public goods?

The Resilient Dairy Landscapes project (see further information below) is assessing how the LENS in Cumbria is working and will provide evidence on how the LENS:

- Deliver ecosystem services, including climate change mitigation, water quality and flood mitigation
- Affect a range of common livestock disease dynamics

The LENS approach builds on decades of research into Payment for Ecosystem Services (PES), and more recent UK-based work to develop a place-based approach to PES (Reed et al., 2017; see further

information). LENSs follow this place-based approach, where multiple ecosystem services are delivered in the same landscape in a voluntary transaction between buyers and sellers of services, as part of a schemes that is developed and governed by partnerships of relevant stakeholders who hold shared values for the landscape.

The UK's Peatland Code is the first regional carbon market to be developed following this approach, following from the success of the Woodland Carbon Code. Both Codes build on a rich evidence-base showing the multiple benefits for society of woodland planting and peatland restoration, enabling the schemes to provide guarantees to investors and safeguards to landowners and managers. Validated and verified projects from both schemes show that this approach is able to leverage private investment alongside public funding to deliver public goods that would not have been delivered through public investment alone.

## How do LENSs work?

Place-based PES schemes like the LENSs approach typically look like this:

1. Intermediary identifies public goods valued by businesses in a landscape, that without action may be under threat
2. Evidence-based actions identified to protect/enhance those public goods
3. Fundable projects developed (may be validated by independent body as likely to deliver expected benefits)
4. Businesses individually or collectively fund projects, paying farmers or working with charities or others to deliver outcomes (may be governed by contracts for delivery of goods protected by pooled buffer of unclaimed goods shared across projects)
5. Key natural assets and public goods are monitored (and can be verified by an independent body)

The Peatland Code and Woodland Carbon Code are restricted to two habitats and tend to focus on climate mitigation benefits. The Landscape Enterprise Network approach is now broadening this place-based approach to draw in a wider range of organisations to fund the delivery of a wider range of public goods from more varied landscapes and habitats.

## Policy options

1. Encourage and co-ordinate with private place-based schemes alongside publicly funded schemes

## Further information

The Resilient Dairy Landscape project is funded by the Global Food Security's 'Resilience of the UK Food System Programme' with support from BBSRC, ESRC, NERC and Scottish Government. Find out more at: [www.resilientdairylandscapes.com](http://www.resilientdairylandscapes.com)

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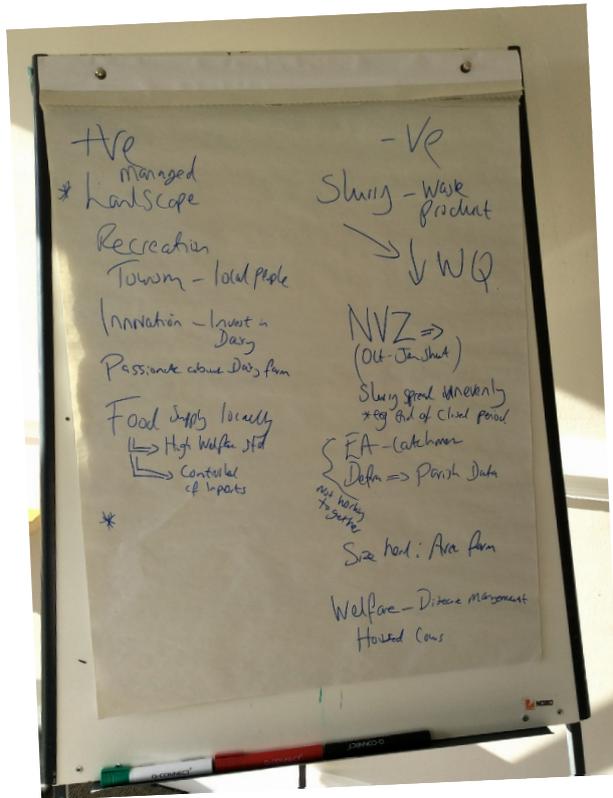
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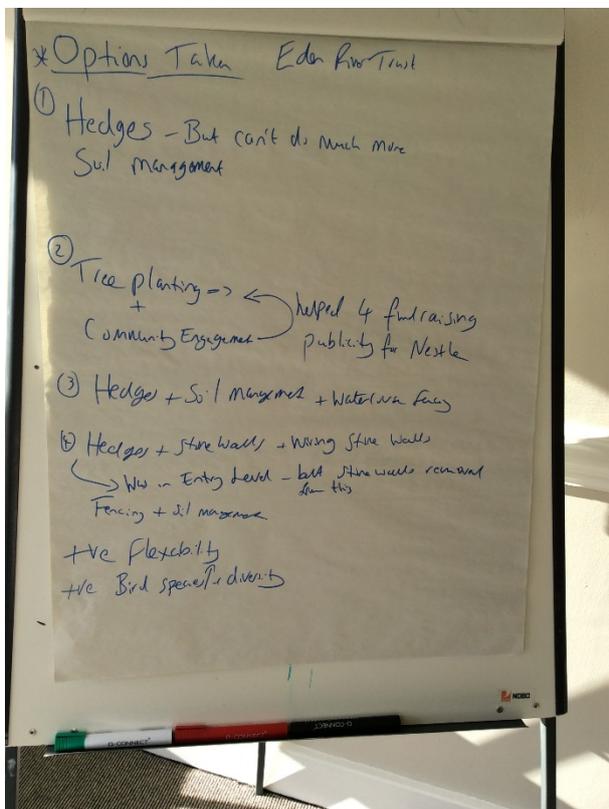


## Appendix 4: Parallel session 1 notes

### Environmental impacts of dairy farming



### Scheme options adopted





Future additions to scheme options

