

# Call for Evidence: Strategic Review of the Northern Ireland agri-food industry

*Comments by*

**Northern Ireland Environment Link**

**15<sup>th</sup> June 2021**

Northern Ireland Environment Link (NIEL) is the networking and forum body for non-statutory organisations concerned with the natural and built environment of Northern Ireland. Its 65 Full Members represent 190,000 individuals, 262 subsidiary groups, have an annual turnover of £70 million and manage over 314,000 acres of land. Members are involved in environmental issues of all types and at all levels from the local community to the global environment. NIEL brings together a wide range of knowledge, experience and expertise which can be used to help develop policy, practice and implementation across a wide range of environmental fields.

These comments are made on behalf of Members, but some members may be providing independent comments as well. If you would like to discuss these comments further, we would be happy to do so.

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## Summary points

- With public concern around the nature and climate emergency increasing there are opportunities for 'brand NI' based on sustainability, with the product being the character and health of the landscape as much as the food itself.
- This will require a significantly different approach to farming and land use compared to what has been delivered in the past
- We must avoid a situation where a 'clean, green' image is promoted whilst environmental indicators show no sign of improvement
- Accreditation schemes such as 'Fair to Nature' can help secure a market premium for farmers whilst ensuring that marketing and promotion is authentic and based on genuine environmental delivery
- Promoting healthy, sustainable diets can play an important role in helping the public make choices which do not result in environmental degradation, either at home or abroad.
- This can be supported by providing a clear and robust set of principles for what constitutes healthy and sustainable eating patterns. - including a 'less but better' approach to the consumption of livestock products
- For the agri-food sector to be sustainable in the long term, efforts to drive innovation and productivity must be coherent with those aimed at protecting, restoring and enhancing the natural environment
- A focus on achieving greater levels of profitability is of equal importance. In some cases, focusing on this objective will not necessarily be contingent on increasing productivity in some farming systems and locations
- Achieving the right balance of outputs from land will necessitate significant changes in how we approach land management and resource use.
- We need a more strategic approach to determining what objectives are delivered from our land and where best they can be achieved
- There is a strong intervention logic to focus public money on the delivery of public goods, due to the high degree of market failure associated with environmental outcomes
- The central focus of any future policy should be on maintaining and improving the environment and the value of our natural capital.
- In developing agricultural mitigation strategies, the focus should be on delivering interventions which maximise co-benefits and avoid negative outcomes
- To achieve net zero climate targets, farmers must be inspired to be part of the solution
- In order to achieve meaningful change, there is a need for enhanced knowledge, targeted not just at farmers, but policy makers, researchers, advice providers, supporting sectors and the wider industry
- Expanding the funding available to drive restoration of the natural environment requires private sector and non-Governmental finance
- This can be facilitated by the introduction of quantifiable long-term objectives for environmental restoration, developing a better understanding of the quality and extent of natural assets and providing land managers with the confidence that investment in nature will be recognised
- There needs to be significant investment in research and education to develop opportunities for positive environmental management in agriculture
- This will help change the narrative around farming and the environment, with the win-win benefits of positive environmental management being acknowledged, accepted and most importantly implemented as part of best practise

## Introduction

NIEL welcomes the opportunity to provide evidence to the Independent Strategic Review of the Northern Ireland Agri-Food Industry, which will play a significant role in setting the future direction of travel for food and farming in Northern Ireland. Our current food and farming system is facing numerous challenges, from volatility in farm gate prices, public health crises, food poverty, food waste, climate change and environmental degradation. There is a clear need for urgent change to address these issues and deliver a new system that is not only good for people, but also nature and climate. We therefore urge this important review to consider the vital role that protecting and restoring nature must play in delivering a long-term sustainable food and farming system. Our response has been based around, but not limited to the key points within the call for evidence.

## The unique story the Northern Ireland agri-food sector can tell, marketing opportunities and branding

With public concern around the nature and climate emergency increasing<sup>1</sup>, agriculture and land use in Northern Ireland will come under increasing scrutiny. This brings immense challenges but also opportunities to ensure that Northern Ireland's agri-food sector is a genuine leader in sustainable food production, farming and land management. Such moves could help create a 'brand NI' based on sustainability, with the product being the character and health of the landscape as much as the food itself. To get there will require a significantly different approach to farming and land use.

To date, Northern Ireland has incentivised a model of farming that has often resulted in poor land management and long-term declines in a range of environmental indicators, including biodiversity, Greenhouse Gas emissions, declining water and air quality. The current approach to farming and land use is not sustainable. If land continues to be used as it has been in the past, it will not maintain long term, sustainable food production or provide the required solutions to address the nature and climate emergency. Any moves to build a brand for Northern Ireland based on sustainability, must be backed up by meaningful action to address some of the significant challenges facing nature, the environment and climate. We must avoid a situation where we promote 'brand NI' based on a 'clean, green' image whilst environmental indicators show no sign of improvement. Such moves would only serve to undermine credibility at a time when consumers are becoming increasingly aware of the environmental footprint of their food.

### Promoting sustainable, nature friendly food consumption

It is not only how we produce our food which impacts nature but also our food choices. To avoid 'offshoring' our environmental impact we must seek to reduce our overall ecological footprint. Promoting healthy, sustainable diets can play a key role in doing this, helping the public make choices which do not result in environmental degradation, either at home or abroad. This can be supported by providing a clear and robust set of principles for what constitutes healthy and sustainable eating patterns - including a 'less but better'<sup>2</sup> approach to the consumption of livestock products. There are opportunities within this strategic review and within Northern Ireland's upcoming food policy to

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<sup>1</sup> An RSPB public opinion poll in March 2020 found: 79% of respondents concerned or strongly concerned about the current state of nature and the environment in NI; 83% of respondents agree or strongly agree that we should have new laws and policies to better protect nature; 83% of respondents agree or strongly agree that a larger portion of funding should be given to farmers to help deliver environmental improvements; 68% of respondents agree or strongly agree that NI have a target to reach net zero emissions by 2045

<sup>2</sup> A less but better approach to livestock production means: meat and dairy production that does not include feedstocks linked to deforestation, global habitat and biodiversity loss; livestock production operations that does not result in damage to natural habitats, impact species or pollution of the surrounding environment; grazing livestock systems, deliver high biodiversity outcomes on semi-natural habitats; away from semi-natural habitats, at least 10% of the farmed area is managed for wildlife.

ensure that the best food choices for people's health and for nature are clear and accessible and that unsustainable products are removed from shelves.

## Productivity of the sector

For the agri-food sector to be sustainable in the long term, efforts to drive innovation and productivity must be coherent with those aimed at protecting, restoring and enhancing the natural environment. In achieving such coherence, we can ensure that the natural capital on which farming and food production depends, is maintained and restored, improving the resilience of farming to future change, and improving our long-term food security through building the productive capacity of our land.

As such, we question whether a broad brush move towards increasing productivity is appropriate for the whole agriculture sector in Northern Ireland. For example, 58% of all farm holdings in NI are found in Less Favoured Areas representing 55% of the total farmed area. These farms, particularly those in formerly classified Severely Disadvantaged Areas (SDAs) face inherent limitations to increasing their productivity in comparison to their low-lying counterparts<sup>3</sup>. They would face significant difficulties in increasing productivity at the farm scale and a broad push towards this aim could have significant negative ramifications for the environment in these areas.

For example, recent European assessments estimate that many High Nature Value farming systems fall within LFAs. These HNV areas often support a mixture of priority habitats including blanket bog, heather moorland, and extensively managed rough grassland which in many cases, are reliant on sympathetic agricultural management to maintain their biodiversity value. A broad push towards increased productivity based on high-input high-output models would be counterproductive to meeting biodiversity objectives in many of these areas. To avoid these unintended impacts, we need to determine the most beneficial outcomes for different sectors and geographic areas. A one size fits all approach towards increasing productivity will fail to do this. Already we have seen the negative impacts of a 'going for growth' strategy focused primarily on increasing output. This broad productivity push has resulted in significant environmental costs which we are now trying to deal with. Although this strategy sought to drive sustainable growth for agriculture in NI, to date this has not been achieved. We need to take a more detailed view as to where increases in efficiency and productivity can provide a range of benefits and must ensure that they are achieved in a way that is innovative, resilient, sustainable and humane.

To help achieve these objectives there needs to be a stronger recognition that effective environmental land management can lead to increases in productivity. For example, introducing wide spaced trees into permanent grassland can increase the length of time animals can remain out on pasture by 14-17 weeks per year<sup>4</sup>. This can also have a significant effect on grass utilisation and ammonia emissions. Similarly, appropriate soil and grassland management for breeding waders has numerous benefits on productivity, including better quality grazing for cattle and more eligible land to farm.

Furthermore, we would emphasise that a focus on achieving greater levels of profitability is of equal importance, and that in some cases focusing on this objective will not necessarily be contingent on increasing productivity in some farming systems and locations. This is particularly relevant for extensive livestock farming in economically marginal areas, which can be more profitable than more intensive, high-input, high-output business models; especially if producers engage in activities that add value, taking on roles within the supply chain. As well as more, profitable, they are also likely to

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<sup>3</sup> <https://www.cumulus-consultants.co.uk/documents/The-potential-impacts-of-Brexit-for-farmers-and-farmland-wildlife-in-UK-23.10.17.pdf>

<sup>4</sup> <https://www.afbini.gov.uk/articles/agroforestry-and-agforward#toc-5>

deliver higher quality environmental outcomes. These points have been reinforced by recent research which has analysed the accounts of over 80 farm businesses in upland and marginal areas. The research found that reducing output to a level where stock are grazed only on the farm's naturally available grass (i.e. without artificial fertilisers), increases profit (or reduces losses), through significant savings of variable costs. In turn, this can generate environmental benefits by reducing some of the environmental pressure on the land, particularly where over-grazing is an issue. The findings challenge the approach often taken by upland farmers that greater profitability automatically ensues from increasing productivity and production<sup>5</sup>.

Ultimately, these points highlight the need for a more strategic approach in determining what objectives we should aim to meet from our land and where best they can be achieved. All the land-based environment in the UK has been altered to a greater or lesser extent by human actions. Competing needs for food, fibre, nature, climate, and human and animal wellbeing must be balanced to ensure that these are met in a sustainable way. The imperative to deliver all of these requirements has never been more pressing in the face of ecosystem collapse, climate breakdown, and the need for equity and wellbeing for the human population. Achieving the right balance of outputs from land will necessitate significant changes in how we approach land management and resource use.

In Northern Ireland, 75% of the land is farmed. Therefore, if we are to get the right balance of outputs from our land we must be clear about our objectives. We need a rapid transition to a sustainable food and farming system that optimises our desired outputs: food for sustainable and healthy diets; net carbon sequestration; significantly reduced pollution; and space for nature and nature-based solutions to climate change. Different regions will have different optimum output based on geographical and ecological context, and different strategies will apply across different areas. Piecing this evidence together will establish a basis for a strategic approach to land use. To facilitate this approach in Northern Ireland, we recommend the following six key strands of action and policy:

1. Greater clarity on the objectives to deliver the best outcomes for people and nature.
2. Increased evidence gathering and spatial modelling to determine the optimum approach to land use in a given area for biodiversity, climate, and food production needs
3. Linkage policies that ensure food production is tied to delivering for nature and climate
4. A shift through policy and support towards sustainable farming practices for all types of food production
5. A strategy to alter consumption toward sustainable and healthy diets
6. A strategy to decrease or eliminate food waste.

## **Areas where you perceive there are market failures that are preventing the sustainable development of the sector and that may require direct government intervention**

Recently, addressing market failure has been identified as the primary justification for government intervention in relation to agriculture<sup>6</sup>. For example, the Organisation for Economic Cooperation and Development (OECD) has identified the following subjects of market failure worthy of government intervention through agriculture policies:

- a. Agricultural research and innovation systems

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<sup>5</sup> <https://www.wildlifetrusts.org/sites/default/files/2019-11/Hill%20farm%20profitability%20report%20%20FINAL%20agreed%2015%20Nov%2019.pdf>

<sup>6</sup> HM Treasury and Defra (2005), A Vision for the Common Agricultural Policy

- b. Investment in education and skills
- c. Investment in strategic physical infrastructure
- d. Support for elements of risk that cannot be absorbed by private risk markets or by farmers themselves
- e. Negative (e.g. pollution) and positive (e.g. biodiversity) externalities

Of these, the existing evidence base makes a robust case for why the central focus of any future policy should be on maintaining and improving the environment and the value of our natural capital (see annex 1).

#### Meeting domestic and international commitments

There are multiple policy drivers with an ambition to restore, protect and enhance the natural environment in Northern Ireland, from our contribution to meeting the UK's international commitments on climate change and biodiversity, to domestic commitments such as the Northern Ireland Environment Strategy, a forthcoming Climate Change Act and meeting the outcomes of Northern Ireland's Programme for Government. Delivering each of these goals will require significant changes in land use and land management. This has been recognised by a range of organisations and institutions including the Intergovernmental Panel on Climate Change (IPCC) and the Committee on Climate Change (CCC) who have highlighted the scale of change required in the land use sector in Northern Ireland<sup>1</sup> to limit warming below 1.5c. Meeting international targets for biodiversity will also require a shift to sustainable land management, with many targets having implications for land use, land use policy and incentives. A new more ambitious framework for environmental support, funded to the scale of need and with a clear focus on the delivery of environmental public goods, provides a vehicle to secure these necessary changes across agricultural and rural land.

#### Addressing market failure

Future policy should focus on supporting the delivery of environmental and social goods and services which are provided by farming and land management that are not rewarded by the market. In terms of agriculture, the main environmental public goods that can be provided are biodiversity, high water quality, air and soil, a stable climate and resilience to flooding. Paying for public goods delivers a range of outcomes that society demands whilst also supporting farming and other land management processes. In many cases, farming and land management is crucial in delivering these, but current policy often fails to utilise the potential for delivering public goods through farming and land management.

There is a strong intervention logic to focus public money on the delivery of public goods, due to the high degree of market failure associated with environmental outcomes. The potential provision of environmental public goods through agriculture and other land management activities is high, however due to their inherently non-excludable non-rival characteristics, markets cannot secure a supply of these goods. This has led to widespread environmental degradation, from the decline of farmland birds, to reductions in water quality. Therefore, public money is vital to secure these environmental public goods, by effectively creating a market for them.

#### Improving farm business resilience, productivity & profitability

Research has shown that engaging in environmentally sustainable farming practises and entering agri-environment schemes, can increase the economic stability of farm businesses at the same time as reducing the negative impacts of farming on the environment. Agri-environment schemes may help to reduce the effects of environmental hazards, such as climate shocks as well as providing a higher and more stable provision of natural pest control, through the adoption of practises to benefit the

environment and biodiversity. Finally, investment in land management through agri-environment schemes helps to provide an income that is independent of market volatility, thereby building resilience against external shocks. Investing in environmentally sustainable farming practises can also contribute to improving farm productivity, through the restoration of functional biodiversity such as pollinators and soil biota.

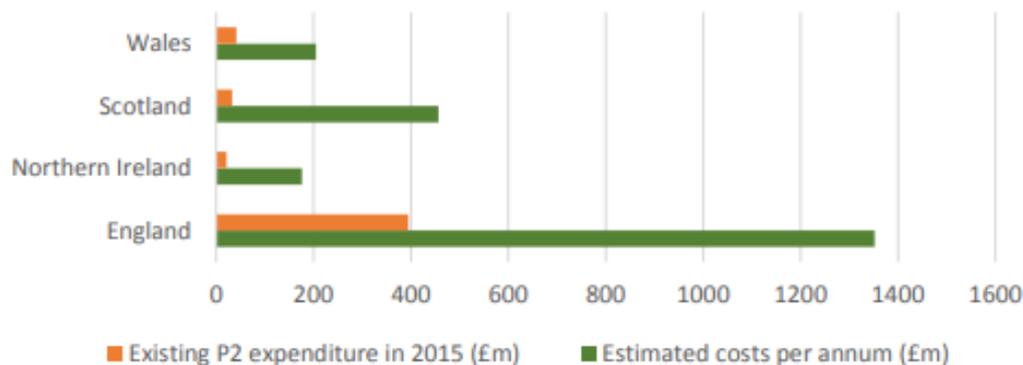
### Investing in environmental land management – meeting the scale of need

The strongest arguments for long term continued investment in farming and land use is to pay for the delivery of public goods and to target other appropriate investments which enable businesses and communities to change and thrive in the future. To achieve this, environmental support schemes should form the bedrock of a new agriculture policy in Northern Ireland.

Previous agricultural policy responses aimed at addressing these market failures have established agri-environment schemes that offer financial incentives to farmers to adopt practises that support biodiversity and the delivery of other ecosystem services. Whilst there are examples of these schemes delivering positive outcomes for nature and the environment, their ability to improve environmental indicators at scale has been limited. Furthermore, the available budget allocated for agri-environment support has never been enough to meet our current environmental objectives, regardless of scheme design or agreement quality. Recent research<sup>7</sup> estimates that for Northern Ireland to meet current environmental objectives through environmental land management an eight-fold increase in funding is required compared to current spending. This point is crucial for future environmental schemes to be capable of delivering environmental priorities at the appropriate scale.

**Figure 1.**

### **Spending on environmental land management in 2015 compared to estimated environmental need<sup>8</sup>**



## **Game-changing improvements in biodiversity indicators in Northern Ireland**

<sup>7</sup> [Assessing the costs of Environmental Land Management in the UK Policy Briefing\\_tcm9-449500.pdf \(rspb.org.uk\)](https://www.rspb.org.uk/Images/Assessing%20the%20costs%20of%20Environmental%20Land%20Management%20in%20the%20UK%20Policy%20Briefing_tcm9-449500.pdf)

<sup>8</sup>

[https://www.rspb.org.uk/Images/Assessing%20the%20costs%20of%20Environmental%20Land%20Management%20in%20the%20UK%20Policy%20Briefing\\_tcm9-449500.pdf](https://www.rspb.org.uk/Images/Assessing%20the%20costs%20of%20Environmental%20Land%20Management%20in%20the%20UK%20Policy%20Briefing_tcm9-449500.pdf)

To date, Northern Ireland has failed to respond to the nature crisis. The [2015-2020 NI Biodiversity Strategy](#) was supposed to deliver a plan on how Northern Ireland could meet its local and international commitments to protect nature and ensure the environment can continue to support people and the economy. However, a [review of the Biodiversity Strategy by RSPB NI](#) revealed that 83% of government commitments (35/42) set out in the strategy have not been adequately met. The consequence of this failure is reflected in reports demonstrating [declines in nature](#), and the severe level of [peatland degradation \(86%\)](#) across Northern Ireland.

Nature in Northern Ireland is in crisis. We are languishing [229<sup>th</sup> worst out of 240 countries](#) for the amount of nature it has left, [25% of bird species are at risk from extinction](#), [97% wildflower meadows are gone](#), 36% of the features in NI's Areas of Special Scientific Interest (ASSIs) are in [unfavourable condition](#), and just [1 out of 21 lakes are in good ecological](#) condition.

Just as climate change negatively effects biodiversity - indeed along with agricultural change is a [key driver of biodiversity decline](#) - so too can action to enhance biodiversity aid action to mitigate and adapt to climate change. Take for example peatlands. Recent analysis carried out by RSPB NI and DAERA demonstrates that [restoration on peatland sites such as the Garron Plateau and Montiagh Moss](#) has the potential to create jobs, increase flood mitigation, increase biodiversity, and store significant amounts of carbon, with estimates showing that for every £1 spent on restoration providing £3.91 in return benefits.

Future agriculture and land management policy will have a crucial role to play in arresting the ongoing decline in nature and the environment in Northern Ireland. As stated above, reforming agriculture policy to focus on environmental public goods will play a pivotal role. This should include the roll out of ambitious environmental land management schemes funded at the scale of need focusing on the delivery of public goods as opposed to paying to minimise negative externalities. Robust regulation will also be essential to ensure that farmers are meeting a baseline set of standards that society expects.

Alongside public investment in the environment, there is a role for the market and supply chain to help incentivise sustainable management of nature and the environment. One mechanism which can help in this regard is certification e.g. organic, Fairtrade. However, until recently there has been no verified standard with a specific focus on providing benefits to nature.

*Fair to Nature* is a biodiversity farming standard that requires farmers to create and/or actively manage a specified range of high-quality wildlife habitats, and manage their soils, livestock and crops in ways which support nature. The *Fair to Nature* approach supports sustainable food and farming and is based on scientific evidence which demonstrates that the required quantity and quality of habitat leads to a significant increase in biodiversity.

In terms of biodiversity, the standard requires farmers to dedicate at least 10% of their farmed land to managed habitats. This includes the positive management of existing features of environmental value and the creation of new ones to meet the 10% threshold, including wildlife rich boundaries, wet features and semi natural habitats. Furthermore, the standard supports the adoption of additional regenerative farming practises aimed at achieving emissions reductions, water protection, soil husbandry, nutrient management, livestock husbandry and sustainable feed and progressive Integrated Pest Management to minimise pesticide use. In the future, environmental land management schemes should incorporate many elements of *Fair to Nature*, in terms of biodiversity provision and wider sustainability goals. Furthermore, the adoption of a standard like this helps to demonstrate to consumers and the supply chain, that farm businesses are contributing to the delivery of high-quality environmental outcomes. There are opportunities for the agri-food sector to

encourage the adoption of standards such *Fair to Nature*. This will not only help deliver environmental outcomes at the farm scale but will provide a market reward to those farm businesses that are delivering measurable benefit to nature and the environment. This will be essential to ensuring that any attempts to promote the Agri-Food sector based on a brand of sustainability are genuine and authentic.

## **Climate change and a journey to net-zero**

In Northern Ireland, agriculture and land use has a vital role to play in reducing Northern Ireland's Greenhouse Gas Emissions and in delivering greater carbon storage and sequestration from our land. Achieving ambitious GHG reductions from agriculture remains a significant challenge, but one that must be overcome; 'business as usual' is not an option. It will take ingenuity, innovation and, ultimately, a transformational change in how we farm and manage our land. But with this, there is much to be gained alongside reductions in GHG emissions. Farming can simultaneously deliver improved water and soil quality, flood mitigation and help restore nature whilst supporting a more productive and resilient food system. We must avoid the false narrative that climate action will harm the interests of farming. In fact, many actions to reduce a farm's carbon footprint can also make economic sense.

In developing agricultural mitigation strategies, the potential impact on nature and the wider environment must be considered, with the focus being on delivering interventions which have proven climate benefits and as a minimum have no negative impact on biodiversity or resource protection. Climate mitigation strategies which can maximise several positive outcomes should be prioritised<sup>9</sup>, particularly those which focus on the implementation of on farm nature-based solutions. Again, adopting a strategic approach to land use in Northern Ireland will be important in meeting climate ambition (see response above).

### Building knowledge

To achieve net zero targets, farmers must be inspired to be part of the solution, however in order to achieve meaningful change, then there is a need for enhanced knowledge. This knowledge need should be targeted at farmers, as well as policy makers, researchers, advice providers, supporting sectors to agriculture and the wider industry. Carbon management on-farm is complex and multi-faceted; there is a need to develop understanding of the core theory around greenhouse gas emissions from agriculture and the mechanisms through which change is possible. This knowledge needs to be combined with the innate knowledge of farmers to develop solutions that are meaningful and sustained for the long term. There is also a need for enhanced communication and knowledge sharing. This can include the development of demonstration farms, carbon benchmarking discussion groups, one to one advice (that continues over a sustained time period) and group workshops to evaluate different mitigation strategies.

The knowledge that is developed also needs to be consistent in its message. As such, there is a need to upskill the current advisory sector, including those supporting sectors that do not currently view themselves as experts in agricultural greenhouse gas mitigation (for example vets, agronomists, financial providers, conservationists and ecologists). This will enable consistent messages to be flowing back to the farming community and may also help with some of the commonly held perceptions around the opportunities for low carbon farming. There is also a need to educate our

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<sup>9</sup> Crane E, (2020) Sustainable climate change mitigation in UK agriculture. A review of evidence for the RSPB.

future farmers and advisory industry, through integration of carbon into the curriculum of our agricultural colleges and universities.

### Carbon auditing

Recently, there has been a growing emphasis on carbon auditing as a means to reduce emissions at the farm scale. However, carbon foot-printing is complicated. The inherent variability of agricultural emissions and carbon stocks due to the intricacies of biological systems, and the impact of climate, soil type, topography, and vegetation from region to field scale results in a level of scientific uncertainty and makes measurement problematic with a significant knowledge gap on the effect of sustainable farm practices. However, metrics are something that are fundamental to not just identifying solutions, informing research and driving technological change but also providing a mechanism to document the impact of what the industry is doing. As such, although no carbon foot-printing tool is perfect, they allow a unique insight into on-farm activity and provide a baseline from which improvements can be drawn.

Currently uptake of carbon accounting by farmers is limited. Farmers who are completing carbon foot-printing generally are doing so due to a request from a supply chain or processor, rather than as an opportunity to evaluate current performance. However, this is changing, and more farmers are starting to trial software and look at the scope of current tools to fulfil their needs.

A current issue however is around the lack of consistency within metrics. There are various tools available, which vary in terms of their inclusion of various inputs, and the assumptions that are made, as well as the levels of accuracy within the data. While different tools offer a variety of user interfaces to allow farmers to be able to choose the platform that most suits their needs, there is a clear need to develop a set of standards that all foot-printing tools adhere to; this would ensure that if the same data was entered into two different calculators, the same result would be produced. This consistency is a key need if we are to inspire farmers to engage with carbon foot-printing in a positive way and see the value of it.

### **Opportunities for intra-sector trading of carbon**

As well as public investment in sustainable land management, there are opportunities for private carbon and other ecosystem services markets to develop in Northern Ireland. Expanding the funding available to drive restoration of the natural environment will need private sector and non-Governmental finance. Recent Natural Capital Assessments of two peatland sites in Northern Ireland has highlighted the potential importance of private investment in sustainable land management, not only in delivering significant returns on investment for environmental restoration, but also in providing market reward to farmers and land managers delivering this work. There are opportunities to ensure that private investment in sustainable land management is increased. This could be facilitated by:

- The introduction of quantifiable long-term objectives for environmental restoration to facilitate market creation, by driving up demand for resource efficient processes, rewarding investment in natural systems, and penalising or prohibiting practices which degrade the natural environment.
- Developing a better understanding of the quality and extent of natural infrastructure assets, as well as capital and maintenance spending needed – with a role for asset registers and corporate natural capital accounting.
- Creating an investment programme and a catchment-based approach allowing for more joined up work from the tops of hills to the sea – using the power of mapping and local data to inform and direct where public payments should be invested and new markets created for greatest benefit.

- On the supply side, providing land managers with the confidence that investment in nature will be recognised, through long-term contracts and markets.
- On the demand side, giving potential buyers—such as developers, utilities and local authorities – confidence in the product they are buying

## **Research and development**

There needs to be significant investment in research and education to develop opportunities for positive environmental management in agriculture. Transitioning to a new approach of profitable, resilient farming based upon environmental protection and restoration, will require a significant shift in perception, and a greater level of knowledge and understanding for all involved. To get there, research and education will be key. Sustainable approaches to agriculture must be embedded throughout all stages in education and professional development, whilst research should focus more clearly on helping to facilitate a transition to agroecological farming practises. We need to move away from our current siloed approach, where positive environmental management is viewed as an option, and in many cases a restriction, rather than an essential part of a thriving business. The need is pressing and urgent to incorporate positive environmental management throughout all aspects of agricultural production. Educational providers and research institutions should reflect this, embedding sustainability throughout all of their programmes. This will help change the narrative around farming and the environment, with the win-win benefits of positive environmental management being acknowledged, accepted and most importantly implemented as part of best practise

Table 1 summaries a high level analysis undertaken by Wildlife and Countryside Link determining the strength of intervention logic aimed at addressing numerous market failures associated with agriculture. The interpretation against these criteria is based on the strength of the case for using public money to secure any given outcome, and is not intended to be detailed, but rather to provide a general overview of the intervention logic. Green is given where, on balance, the public investment case against an outcome aligns strongly with these criteria. Where there is a degree of caution needed regarding the use of public money, the outcome is rated as amber, and where the criteria suggested a limited or no role for public money, it is rated as red. Where the criteria is judged to be not applicable to the outcome, this is marked with a diagonal fill. As an example, an amber rating is given against the ‘Regulation vs Incentive’ criteria where caution is needed to ensure public money is not used to secure outcomes that should be met through baseline regulation. As such, this exercise provides a ‘traffic light’ approach to how appropriate public money will be in securing a given outcome<sup>10</sup>.

| Table 1 - Outcomes for a Sustainable Farming and Land Management Policy, and strength of intervention logic assessed against a range of criteria (see Annex 1 for more details) |   |                   | Criteria used to provide indicative strength of the intervention logic |                |               |                          |                         |                           |                        |
|---|---|-------------------|--|----------------|---------------|--------------------------|-------------------------|---------------------------|------------------------|
|   |   |                   | Public goods   | Market failure | Scale of need | Regulation or incentive? | Polluter Pays Principle | Strength of policy driver | Public-Private benefit |
| Restoring our natural capital   | Biodiversity conservation & ecological networks |                   | Green  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
|   | Landscape character & Historic Environment      |                   | Green  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
|   | Improved soil function                          |                   | Amber  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
|   | Better water quality                            |                   | Amber  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
|   | Flood risk management                           |                   | Amber  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
|   | Climate change mitigation                       |                   | Green  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
|   | Climate change adaptation                       |                   | Green  | Green          | Green         | Green                    | Green                   | Amber                     | Green                  |
|   | Improved air quality                            |                   | Amber  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
|   | Recreational access                             |                   | Green  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
| Building resilience & managing risk   | Financial risk management                       | Catastrophic risk | Amber  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
|   |   | Marketable risk   | Red  | Amber          | Green         | Green                    | Green                   | Green                     | Green                  |
|   |   | Normal risk       | Red  | Red            | Green         | Green                    | Green                   | Red                       | Red                    |
| Promoting sustainable, innovative and humane production   | Improved productivity                           |                   | Red  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
|   | Skills & knowledge exchange                     |                   | Red  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
|   | Research and development                        |                   | Amber  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |
|   | Improved profitability                          |                   | Red  | Red            | Green         | Green                    | Green                   | Red                       | Amber                  |
|   | Improved animal welfare                         |                   | Green  | Green          | Green         | Green                    | Green                   | Green                     | Green                  |

<sup>10</sup> <https://www.wcl.org.uk/docs/Link%20farming%20and%20land%20use%20policy%20paper%20FINAL%20Sep%202017.pdf>