



Funding nature's recovery

How new public spending can
unlock private investment



National
Trust

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Executive summary

The government proposes to replace the Common Agricultural Policy (CAP) with a new environmental land management system that rewards farmers who manage their land in the public interest, enhancing environmental systems alongside food production.¹

As well as public goods, sustainable land management offers a range of private benefits. Our work on the Natural Infrastructure Schemes (NIS) concept suggests that for some of these, specifically in the areas of flood risk management and water quality improvements, lucrative private transactions to provide land management solutions should be possible. As it is estimated that flooding and water pollution cost England £2.4 billion a year, the potential scope for this market is huge.²

Working with the National Trust, we have previously outlined how the NIS would work in detail. As an area based market in avoided costs, it could deliver environmental improvements by bringing together groups of land managers in selling ecosystem services to groups of beneficiaries, such as businesses, infrastructure operators and local authorities. It could provide new and profitable income streams for farmers in a time of uncertainty, and new mechanisms and funding for achieving the ambitions of the government's 25 year environment plan. It could also enable businesses and other beneficiaries to avoid substantial future costs.

In this report we address the question of how the new environmental land management (ELM) system could support the emergence of complementary private markets, such as the NIS, for environmental goods and services from farmland.

To achieve this, we conclude that the new ELM system would need to focus on three critical challenges:

1

Building a business case: sectors such as power and transport could realise significant savings if farmland upstream of their assets was managed to protect against flooding and reduce water contamination. However, because there can be more uncertainty in naturally engineered solutions, and the benefits can be hard to quantify, farmers can struggle to build an acceptable business case for investing in natural capital. Businesses which could benefit from improved environmental services from farmland can perceive natural engineering projects as too risky compared to traditional hard infrastructure solutions. It can also be challenging to develop schemes at sufficient scale.

2

Lack of facilitation: even where there is clear supply and demand for a given project, there are not enough suitable platforms or institutions capable of either bringing sellers and buyers together or facilitating agreement on contractual and financial terms. Our research suggests that a collaborative approach between buyers and sellers is more likely to deliver outcomes than a simple transactional relationship.

3

Knowledge and skills: many UK farmers currently lack the knowledge and commercial skills to exploit emerging private demand for environmental services from farmland. Private markets for these services will require farmers to work with others in tailoring packages of land management measures to achieve a given result. They will need to price them competitively and be accountable for outcomes. This is a radical departure from a system in which basic subsidy

“Collaboration can be as important as market competition in getting better environmental outcomes from land.”

payments – which make up 61 per cent of current Farm Business Income for the average English farm – are handed out to farmers based solely on the area of land they farm. With the new ELM system not due to come fully into force until 2027, there is scope for experimentation with approaches and initiatives to overcome these challenges in the tests and trials phase up to 2021. Transactions are likely to be complex and involve multiple parties, and this process should aim to promote new ways of working. Existing projects demonstrate that collaboration can be as important as market competition in getting better environmental outcomes from land.

We propose three ways the new ELM system could support the emergence of new approaches to overcome the challenges:

Use public money to match fund private investment in natural capital

Where a public environmental service is also being provided, match funding would help to lower the cost of natural engineering projects, reducing the financial burden on private funders and making it easier for them to set out a business case for the investment. This model is currently used under the CAP in the horticulture sector, where the government contributes half of operational funding for multi-year plans developed by producer co-operatives.

Introduce formal accreditation for independent brokers

Introducing approved intermediaries into the market would help bring buyers and sellers together, helping to solve the facilitation challenge. These brokers could have authority to conclude contracts, facilitate funding and verify compliance.

Create a new type of private enterprise: Natural Infrastructure Delivery Companies (NIDCs), to deliver land management projects that enhance the environment

The NIDC would be a co-operative style entity, bringing farmers and beneficiaries together as co-owners of a private enterprise focused on developing and delivering large scale land management projects that provide environmental services. It would conclude service contracts with customers (eg infrastructure operators), which would be delivered through long term land management projects commissioned from farmers. This would help address the facilitation and knowledge and skills challenges outlined. Delivery risk would be the responsibility of an NIDC and would be managed by it, thus sharing risk between buyers and sellers.

This would enable farmers to learn how best to provide environmental services on a commercial basis whilst also insulating them from some of the risk that projects may not deliver the predicted outcomes. It would also enable collaborative rather than transactional relationships between suppliers and purchasers, with all NIDC members having a material interest in the long term success of projects.

The chance for a new approach

“Enhancing the environmental condition of UK farmland will result in significant private benefits as well as public goods.”

The government’s 25 year environment plan is an extraordinary statement of government ambition. It will transform how the UK manages its land, water and natural resources.

The government’s proposed environmental land management (ELM) system, including a new farm payment scheme to replace the Common Agricultural Policy (CAP), will be the single most important policy instrument, in the short term, for realising these ambitions. This new system has the potential to pay for a significant tranche of the environmental enhancements needed to achieve the goals of the 25 year environment plan, and transform the relationship between agriculture and the environment.

The environmental land management system – key components

The new ELM payment scheme, which will sit within the wider ELM system, will replace current basic payments to farmers with funding allocated on the principle of ‘public money for public goods’, which will predominantly be environmental public goods. Other differences to the current CAP are likely to include paying for outcomes based on whole farm, landscape and catchment scale schemes, rather than single environmental measures.

The ELM system will include other financial and non-financial instruments, which will be identified and tested in the period ahead of the new scheme coming into force. Suggestions for the wider ELM system have included conservation covenants, reverse auctions and new market mechanisms.

The timetable for introduction of the ELM system will be:³

- 2019-20: tests and trials of those elements that could form part of the new payment scheme and system
- 2021: first pilots of the new scheme and ongoing tests and trials
- 2022-24: wider roll-out of the new ELM pilot scheme and further tests and trials
- From 2025: full ELM scheme and wider system roll-out

Unless payment reform expands beyond the question of what the public purse should be paying for, an important opportunity will be missed. Enhancing the environmental condition of UK farmland will result in significant private benefits as well as public goods. It is in the government’s interest to encourage private beneficiaries to fund and increase the creation of these benefits.

Our work on Natural Infrastructure Schemes has previously quantified how better water management on upland farms could reduce the £2.4 billion annual cost, much of which falls to the private sector, of managing flood risk and water pollution. This potential for cost savings could underpin private markets for ‘slow clean water’, where businesses enter into private agreements with farmers to manage areas of farmland to improve water management, going beyond what is required by environmental regulations (see page seven).

Markets can be an efficient way to allocate the resources needed to achieve environmental goals. However, the current market only supports relatively simple transactions between individual buyers and sellers.⁴ Because many environmental challenges are complex, a simple transactional approach is unlikely to unlock the full value of large scale environmental restoration. In 2018 we conducted workshops exploring possible barriers and ways to overcome them to create markets that can lead to large scale environmental

“The government should support research into workable models for private transactions and the potential of hybrid public-private approaches.”

improvements.⁵ We have identified the following fundamental challenges which the new ELM system could help to overcome:

- **Scale.** Catchment or landscape scale schemes will require participation by multiple farmers. This will mean either multiple bilateral transactions between beneficiaries and farmers, or a single multi-lateral one. Neither of these arrangements can be guaranteed in a ‘pure’ market in the absence of institutions and mechanisms to encourage collaboration.
- **Risk.** Payments based on outcomes are more attractive for buyers. However, farmers as sellers will be wary of taking on liabilities based on the long term performance of inherently unpredictable environmental systems.
- **Adaptiveness.** Scientific and technical knowledge about natural engineering is advancing all the time, for example regarding the effectiveness of natural flood management. Added to which, natural systems will respond dynamically to, for example, climate change. The terms of agreements would, ideally, be capable of changing to reflect new knowledge, market conditions or wider environmental change. Yet, private contracts require clarity from day one over exactly what is being bought and sold, and any ambiguity is likely to turn off prospective buyers and sellers.

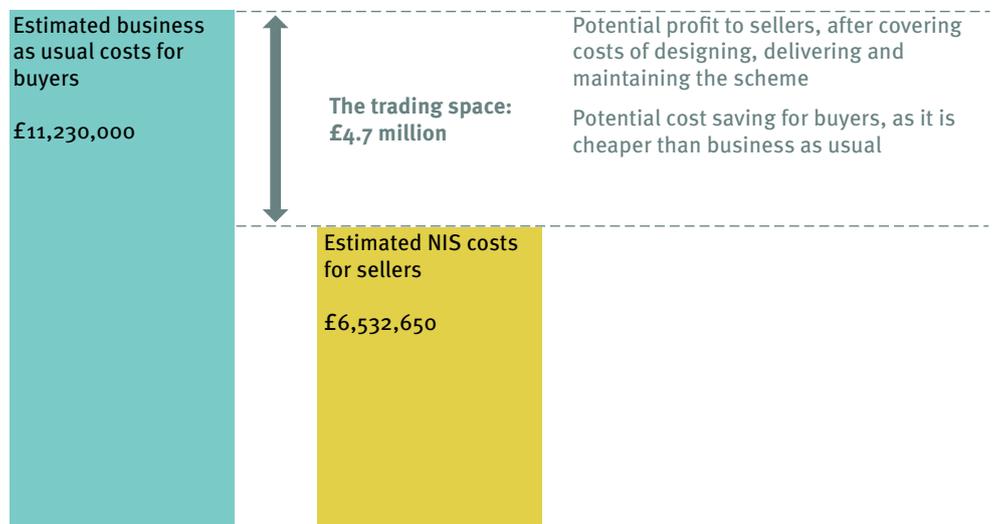
Not everything can or should be delivered through market based instruments. But the development of the new system is an opportunity to explore the considerable potential for private investment and more creative approaches to achieving the ambitious natural environment enhancements envisaged in the 25 year environment plan. The government should support research into workable models for private transactions and the potential of hybrid public-private approaches.

Moving from concept to reality

Our previous work with the National Trust on Natural Infrastructure Schemes (NIS) has demonstrated the strength of the economic case for private markets for some ecosystem services, as shown in the two examples below.

Flood risk management in north west England⁶

A theoretical 200,000 cubic metre water attenuation scheme in the Cumbrian uplands, sufficient to deliver downstream protection against a one in 75 year flood event, would cost almost £5 million less to create and maintain over 15 years than the business as usual costs that would be incurred by downstream beneficiaries.



Water quality in eastern England⁷

Combining cover crops with lower input commodity production across 1,000 hectares of arable farmland could be used for a water quality improvement scheme in East Anglia.

In our theoretical example, the costs of creating and maintaining the scheme over 15 years were almost £1.5 million less than the costs to downstream beneficiaries of business as usual.



There are two major hurdles to overcome in moving from these theoretical situations to real world transactions:

- UK farming is not currently set up for the large scale production of environmental public goods.
- Investing in natural infrastructure is seen as too risky by UK businesses.

Supporting farming to deliver environmental goods

The government's vision for the future of UK agriculture implies transforming both the culture and practice of farming. Such a profound change to the basis on which farms can access public funds will require farmers to acquire new skills and commercial acumen in a market they are unfamiliar with. Without specific support, private markets for environmental goods from agriculture are unlikely to emerge until the new system of publicly funded agreements has proven itself over a period of years.

The leap required to a new style of business management will be great for many farmers. Two thirds of farms do not undertake basic business planning. For some of the most precarious sectors such as upland livestock grazing, this figure rises to over 80 per cent. This may, in part, be down to the fact that most farms are small scale operations. For example, 60 per cent of English arable farms cover less than 50 hectares, 40 per cent of beef herds have fewer than ten cows, and 60 per cent of pig farms have fewer than 50 pigs.⁸ However, this is in contrast to other small businesses where just under three quarters of SMEs across the whole economy undertake some form of business planning.⁹

It is fair to expect a sector in receipt of huge sums of public money to be transparent in its delivery of public goods. However, the new system must also work with the grain of farming, if it is to be fairly and effectively implemented, and supported by those who will need to deliver it on the ground. This means respecting the motivations and needs of those who currently farm the land. They will need support in the form of advice and guidance, as well as payments for public goods, if the transition to the new system is to be successful.

The business practices of English farms¹⁰

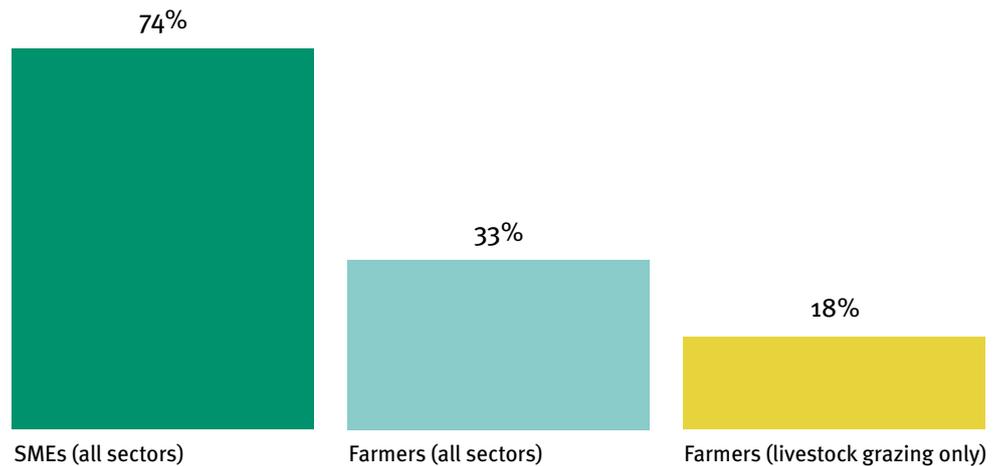
Financial returns are not the most significant motivator for many in farming. In a government survey of farmers only 79 per cent said farming was about maximising profit, against 93 per cent who agreed that the farming lifestyle was what they really enjoyed.

Only one in three farms regularly produce budgets, gross margins and cashflows, or analyse their profits and losses. The top 25 per cent of farms in terms of performance are two and a half times more likely to engage in practices such as producing profit and loss accounts than the bottom 25 per cent.

Many farms are dependent on subsidy payments to stay in business. In England, between 2014-15 and 2016-17, 61 per cent of Farm Business Income came from CAP direct payments and the average farm lost £700 on its farming business.

“Natural engineering should have a major role to play as a complement, or even alternative, to hard infrastructure solutions.”

Percentage of farms undertaking business planning compared to other businesses¹¹



Schemes that businesses can invest in

In our exploration of the Natural Infrastructure Schemes idea, we have previously demonstrated the scale of the costs being incurred by the UK’s utility and infrastructure sectors from flood risk and water contamination.¹² Natural engineering should have a major role to play as a complement, or even alternative, to hard infrastructure solutions.

However, there are huge variations in the readiness of different sectors to invest in natural engineering solutions. The water sector has made increasing use of catchment management to address pollution, with funding running into the tens of millions of pounds per year nationwide.¹³ Other sectors, such as electricity and transport, invest in the natural environment, but not generally in large scale schemes intended to avoid costs (see the examples below).

Examples of infrastructure operators’ approaches to natural engineering

Electricity

National Grid owns a substantial amount of land including more than 300 substations and the land around them. It has various schemes on non-operational land to promote local biodiversity and community projects, with an aim to recognise and enhance the value of natural assets on at least 50 sites by 2020. It has invested in natural engineering to protect physical assets by working with the Northumberland Wildlife Trust to reinforce a 40 metre stretch of river bank on the River Glen with willow to protect five towers from the risk of erosion. However, this project is an exception.

Electricity generators have been permitted to invest in wetlands to meet regulatory obligations to help boost eel populations. This was accepted as a more cost effective solution than fitting screens to intake pipes.

Roads

Natural engineering is increasingly being considered by Highways England as a flood protection measure.

Funding bids based on natural flood management have been submitted to the ring fenced environment fund. However, none have been able to demonstrate sufficiently high value for money to be awarded funding.

Our research with businesses and stakeholders in the electricity, transport and insurance sectors has revealed that these sectors are not ready to invest in natural engineering on a wide scale.

Rail and road operators have only recently started showing an interest in the potential of natural flood management to protect their assets. Other economic sectors exposed to the costly consequences of flood events, most notably insurance, are doing less.

There are a number of reasons for this inactivity. But a common reason given is that natural engineering does not give the same level of certainty over performance as steel and concrete. There is also a challenge for projects to reach the scale necessary to cross the critical threshold to be cost effective compared to hard infrastructure alternatives.

For example, electricity substations have a lifespan of decades, and the risk profile of natural flood management is seen as badly suited to providing certainty of protection against extreme flood events. There are some opportunities in the electricity sector (as we outline below), but they relate to improving the resilience of small assets that would otherwise go unprotected.

Opportunities for natural flood management in the electricity sector

Industry guidelines are for substations with more than 10,000 customers to be protected against flooding that might occur within a 1:1,000 year event. Primary substations with fewer than 10,000 customers should be protected against flooding that might occur within a 1:100 year event (in England and Wales), or if this is not practical then other measures should be adopted, such as alternative supplies. For smaller distribution substations there is an assumption that, if these are flooded, then so are the customers, and the substation can be repaired before there is demand for electricity again, so no protection is required.

For National Grid the main opportunity will be to address surface water flooding, especially for relatively small assets like cable sealing ends where cables enter the ground. There may also be opportunities to reduce the risk of erosion to towers from rivers and groundwater.

For Distribution Network Operators (DNOs), the main opportunities will be for those smaller substations which cannot meet the test of being able to get back up and running quicker than demand after a flood. This was the case when Patterdale in Cumbria was flooded in 2015: many of the homes served by the high voltage transformer were not flooded, but it was impossible to fix the damaged transformer as the roads in and out were impassable. The town was without power for several days.

In short, while there is interest among infrastructure operators in natural infrastructure, there are no obvious drivers to invest more money in it. The new ELM system can be used to demonstrate the viability and effectiveness of private agreements and transactions, to help build the market. This should involve supporting new forms of engagement and collaboration between groups of farmers and beneficiaries.

How the ELM system could support market development

The proposed replacement for the existing CAP single payment will, in the long run, support the emergence of market based approaches. Farmers will become accustomed to delivering whole farm, landscape and catchment scale environmental schemes on the basis of payments for outcomes and potential beneficiaries will recognise this is an opportunity.

However, this transformation will take time, during which the considerable costs from flood and water pollution will continue to be incurred by the public and private sectors. If effort was made to speed up the change, these costs could be lowered.

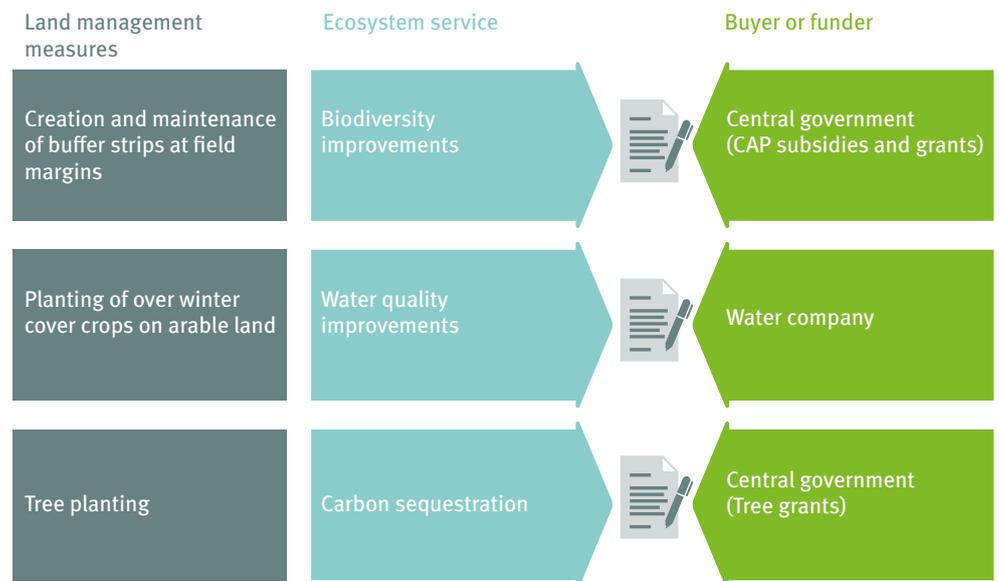
The 25 year environment plan recognises the role for government in encouraging private investment where there is private benefit, whilst targeting public money at public goods. The government should, therefore, get the private market moving and take action to facilitate transactions, focusing on the following measures.

Crowding in private investment

Match funding private investments in natural capital under the new ELM system

The public and private sectors both currently invest in supporting environmental enhancements on UK farmland. Sometimes these investments can happen on the same farms. But these can be loosely characterised as ‘single measure-single outcome-single funder’ investments that happen independently of each other, even when they are focused on the same area of land, or adjacent land.

Current model: unbundled, individual ecosystem service contracts



Aligning public and private spending could support the development of more large scale, complex projects that deliver multiple benefits. We have identified a model for co-investment by the public and private sectors that is likely to be more responsive to local priorities and give local actors greater control. This model utilises the principle of match funding that exists for the horticulture sector under the current CAP (described below).

Match funding of Producer Organisations under the EU Fruit and Vegetable Regime¹⁴

There are more than 30 registered Producer Organisations (POs) in the UK. Each PO must have a minimum of five members, grow more than €1 million of produce per year and be run on the basis of one member, one vote.

Each PO finances its operational programmes through an operational fund, raised by its members or itself. Operational programmes must run for between three to five years and contain two or more environmental actions, or at least ten per cent of the expenditure should cover environmental actions. They have to meet additional objectives including crisis prevention and management, and planning and adjusting production in line with market demand.

If these conditions are met, farm subsidies will contribute half the value of the operational fund, ie the public purse match funds the work of the PO.

Our recommendation is that a similar approach to horticulture Producer Organisations should be used and adapted, making privately funded environmental enhancement schemes eligible for match funding from the government. This would lower the cost and risk for businesses interested in investing in natural infrastructure, and it would make it easier to get NIS-style private land management agreements off the ground.

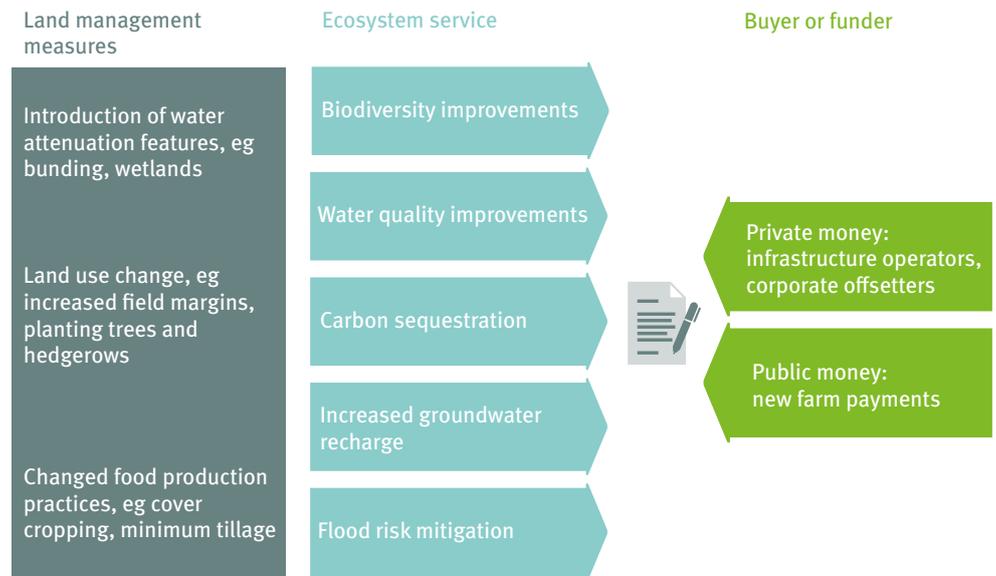
This would be different to, for example, the current Partnership Funding approach to flooding, where the private sector is essentially invited to top up public funds for flood defences.¹⁵ In a match funding model, the private sector would have more autonomy and authority to design environmentally enhancing land management schemes that have a private as well as public benefit, which the public sector would support to enable more favourable assessments of benefit-cost ratios. Combining funding in this way will allow schemes to happen that have environmental benefit, but which might not reach the benefit-cost ratios required if funded only by the public or private sector separately.

Reducing the share of project costs payable by the private sector would enable, for example, some private funds to be diverted to constructing complementary hard infrastructure projects, providing a comprehensive solution using hard and natural engineering methods together.

Alternatively, it would enable the construction of natural engineering projects to a significantly higher specification than modelling suggests is necessary, providing a buffer against under performance and greater certainty that the desired outcomes will be delivered.

Given that this is already a well established model, the initial 'tests and trials' workstream should explore how it could be adapted for environmental purposes, with a new model ready for the 2022 pilot phase. This should include developing the platforms and institutions eligible to receive the match funding.

Adapted model: a match funded contract



Facilitating the brokerage market

Accredited brokers with the authority to facilitate funding and verify compliance

Public funding can help to pump prime private transactions, but the availability of money will not automatically stimulate market development. Fast progress in facilitating private investment is likely to rely on the activities of individuals or organisations acting as ‘market makers’ by brokering agreements between buyers and sellers.

Experience with Catchment Sensitive Farming has demonstrated the value of trusted intermediaries in enabling farmers and water companies to work together on environmental projects.

These brokers could:

- Negotiate or set prices
- Identify and access funding, both public and private
- Set the rules to which buyers and sellers must adhere
- Monitor and determine compliance, and resolve disputes
- Design land management schemes for public goods and market them to potential funders

There are a number of organisations and initiatives currently fulfilling some of these functions, such as EnTrade and the Rivers Trust.¹⁶ It would be a legitimate aim of public policy to encourage the emergence of a new class of multidisciplinary agents or service providers with commercial and scientific skills, and fundraising capability, to help bring large scale, cost effective land management schemes providing public goods and private benefits to market.

The government could accelerate the emergence of these brokers by accrediting organisations to perform certain functions in discharging the new environmental land management system. Their role might include:

- Designing and marketing subsidy-compliant schemes
- Making applications for public funding to deliver the schemes, which could be eligible for fast track approval
- Monitoring and verifying farmer compliance with funding requirements

Previous government schemes to stimulate what might be termed ‘environmental markets’ have made use of accredited intermediaries to build and service demand. One notable example would be the Green Deal, which made use of accredited Green Deal Providers to offer approved packages of energy efficiency improvements to householders, and arrange finance to deliver the work. While the Green Deal is widely held to have failed, the architecture underpinning it was exhaustively planned by government over several years, and its provider certification scheme was laudable for its effectiveness in addressing potential worries over the credibility and reliability of installers and assessors. The insights from this aspect of the Green Deal are relevant for the planned transformation of land management funding.

Accreditation should be available to charities, non-profit and for-profit companies. Brokers may choose to operate online platforms but this should not be a requirement.

Green Deal Providers¹⁷

The defined functions of Green Deal Providers (GDPs) were:

- Offer a Green Deal plan to the customer setting out the agreed home energy efficiency measures based on recommendations from an authorised Green Deal assessor.
- Provide a finance package that spread the cost of measures over time.
- Settle a contract with the customer for the Green Deal measures to be installed by an authorised installer.
- Be the counter signatory to the Green Deal plan and the Consumer Credit Act agreement, setting out the terms of the loan to householders.

Supporting collaboration between land managers and beneficiaries **A new type of private enterprise to deliver environmental enhancement**

Better intermediation between buyers and sellers will help the market to develop. However, as we have already explained, a transactional approach built around the model of service provider and customer will struggle, at least in the short term, to generate large scale schemes with multiple environmental benefits.

This could be addressed with a new approach, built around a new category of private enterprise dedicated to developing and delivering land management schemes that enhance the environment. This would be a logical evolution of the existing Producer Organisation model, adapted for the new era of public money for public goods.

These Natural Infrastructure Delivery Companies (NIDCs), would be co-operative style entities with members from both the supply and demand side. They would be a vehicle for sharing the risk inherent in a complex environmental improvement scheme between farmers and beneficiaries. It would give all parties a material interest in the success of the scheme and help to create the conditions for a collaborative rather than solely transactional relationship, fostering innovation and flexibility in delivery.

The NIDC would:

- have the same ownership and governance structures, and regulatory benefits and requirements, as existing co-operatives and community benefit societies;
- be eligible for match funding from new farm payments for certain expenditure, in the same way as existing Producer Organisations;
- be collaborative endeavours owned and run democratically by local people.

However, NIDCs would also facilitate an alternative approach to business-as-usual, geared towards delivering substantial long term improvements to the natural environment, by enabling:

- farmer-led design of ecosystem enhancing land management programmes;
- collaboration across land holdings, opening up the possibility of landscape-scale delivery;
- partnerships between buyers and sellers, based on commitment to long term environmental improvements, underpinned by commercial contracts.

A major benefit of the NIDC would be its ability to attract buyers. By pooling risks and costs, it would enable natural engineering to compete better with hard infrastructure. Buyers would benefit from the ability to purchase services from a stable, trusted, long term partner. It would also enable members to have a high degree of influence and control over the decision making of counterparties to contracts, through participation in the NIDC board. See page 16 for an overview of how NIDCs would work.

Summary of measures to support market development

Measure	Proposed government action
Crowd in private investment	Adapt the existing Producer Organisation co-funding model to enable ELM system match funding of private investments in environmental improvement. Trial the new model between 2019-20, aiming for full roll-out under the new system in 2022.
Build the brokerage market	Accredit private organisations to broker ELM system agreements or private agreements for land management schemes that enhance the environment.
Support collaboration between land managers and beneficiaries	Create a new category of private enterprise, the Natural Infrastructure Delivery Company (NIDC), evolving the current model of co-operative Producer Organisations to allow beneficiaries and stakeholders to collaborate on schemes. The NIDC would be eligible to receive match funding through the ELM system for its privately funded environmental investments.

How Natural Infrastructure Delivery Companies would work

Key functions

Risk management: it would act as a guarantor of contracts on both the buying and selling sides, thereby holding and managing delivery risk.

Creating liquidity: buyers and sellers can cash-up, buy-in or sell-up their stakes in contracts.

Delivery innovation: with buyers and sellers as partners in the company, it should be possible to vary the terms under which projects are delivered, to react to changing circumstances and take advantages of new opportunities.

Structure

It would be an independent private legal entity, incorporated in the public interest or with a public interest purpose to improve the environment for the benefit of members and the local community, eg a co-operative or community benefit society. It would be governed by a board.

Ownership

It would be owned by private shareholders. Shares can be sold back to the NIDC but cannot be privately traded. Both farmers (as the sellers) and local beneficiaries (water companies, transport operators, local authorities) would have incentives to become shareholders. Ideally both farmers and beneficiaries would sit on the board.

Funding

It would deliver programmes on the basis of an operational fund, raised from shareholders and government funding. Shareholders would include farmers, landowners and beneficiaries, and the NIDC may raise additional funds from other investor shareholders.

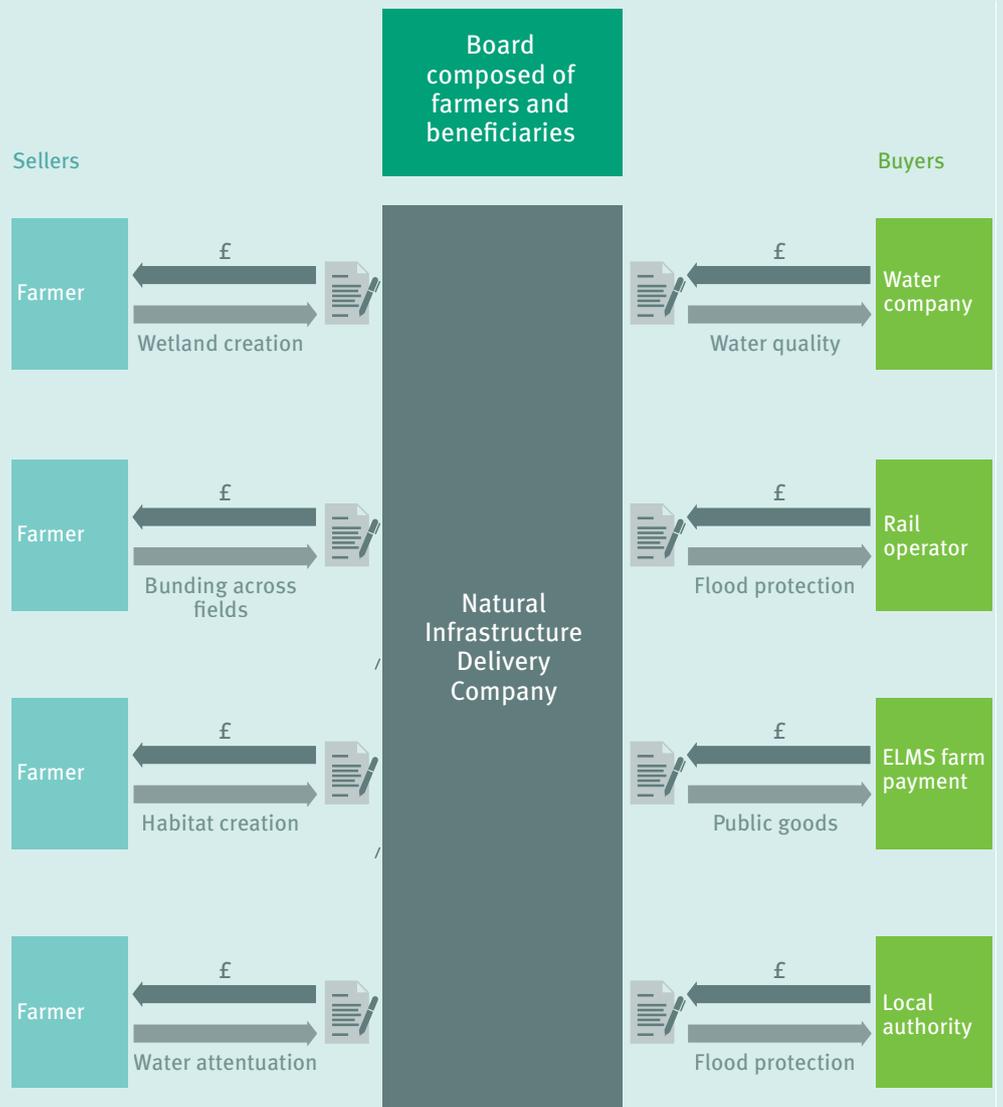
The operational fund would need to be sufficient to enable the NIDC to act as guarantor of the contracts on both buying and selling sides. The initial test and trial period of the NIDCs will need to determine if additional investment or insurance products are needed to meet this requirement. The first NIDCs may require additional government funding to assist with start-up costs to prove the concept.

The NIDC enters into private contracts for the delivery of environmental outcomes to generate revenue and profit.

Contracting model

It would enter into payments-for-outcomes contracts with local beneficiaries.

It would commission land management schemes (on the basis of outputs, not outcomes) from local farmers.



Summary of recommendations

“The economics of markets for environmental improvement stack up, because of the considerable costs incurred from environmental damage which could be avoided.”

The 25 year environment plan is an extraordinary statement of government ambition, aiming not only to protect but also to restore the natural environment within a generation. It makes clear that public money will ultimately be targeted only at projects which provide public goods, with the private sector providing funding where there is private benefit, such as in flood resilience or water quality.

The economics of markets for environmental improvement stack up, because of the considerable costs incurred from environmental damage which could be avoided. However, these markets are complex and are unlikely to emerge unless they are supported in the initial stages. The government can create the conditions needed for these markets to emerge.

We recommend the introduction of three features into the new ELM system to facilitate the emergence of private markets alongside ‘public money for public goods’

1 Use public money to match fund private investments into natural capital

There is considerable private sector interest in developing natural engineering solutions to flood and water quality problems. However, the inherent uncertainty around working with natural systems can make it too difficult to develop an investible business proposition.

Government match funding could overcome this problem. It would lower the risk for private investors by enabling the construction of natural solutions to a higher specification, providing a buffer against under performance. Or it could free up some private funds for the construction of complimentary hard infrastructure projects, to provide assurance while benefiting from natural solutions.

Given that match funding for horticulture is a well established model, the government’s initial ‘tests and trials’ workstream should explore how this model could be adapted, ready for wider roll-out in 2022. This should include developing the platforms and institutions eligible to receive match funding.

2 Introduce formal accreditation for independent brokers

Accelerating the establishment of the market is likely to rely on the activities of individuals or organisations acting as ‘market makers’ by brokering agreement between buyers and sellers. These brokers would have the authority to design and market schemes, conclude contracts, facilitate public and private funding and verify compliance. Confidence in these brokers will be increased if they are approved and formally accredited in the new environmental land management system.

3 Establish Natural Infrastructure Delivery Companies

The Natural Infrastructure Delivery Company would enable groups of farmers and beneficiaries to come together as co-owners of a private enterprise focused on developing large scale land management projects that provide environmental services. While brokers may be employed by the NIDC to help design its scheme or verify compliance, a major additional benefit would be in sharing risk between buyers and sellers, and enabling a collaborative and flexible approach, which is more likely to be innovative and achieve the desired outcomes.

Endnotes

- ¹ Defra, September 2018, *Health and harmony: the future for food, farming and the environment in a Green Brexit - policy statement*
- ² A Francis, S Armstrong Brown, W Andrews Tipper and N Wheeler, 2016, *New markets for land and nature: how Natural Infrastructure Schemes could pay for a better environment*, Green Alliance and National Trust
- ³ Defra, September 2018, *The future for food, farming and the environment: policy statement (2018) – timeline*
- ⁴ For example, Wessex Water have used the EnTrade platform to conduct reverse auctions with individual farmers to reduce nitrate pollution in Poole harbour. While this is a significant step, it is only one funder addressing a single environmental pressure based on a regulatory driver.
- ⁵ We held a series of four workshops examining barriers faced by farmers to entering a NIS type scheme; challenges and solutions to forming contracts and carrying out transactions between buyers and sellers; lessons for scaling up ‘payments for ecosystem services’ schemes; and effectiveness and practicalities of natural engineering. The workshops included stakeholders from: 3Keel, Aecom, CAAV, CLA, Defra, EnTrade, ESI Consulting, National Trust, Natural England, Environment Agency, NaturEtrade at the University of Oxford, Northern Forest, University of Liverpool, Pyterra, Rivers Trust, Southern Water, Viridian Logic
- ⁶ W Andrews Tipper and A Francis, 2017, *Natural Infrastructure Schemes in practice: how to create new markets for ecosystem services from land*, Green Alliance and National Trust
- ⁷ W Andrews Tipper, 2017, *Protecting our assets: using Natural Infrastructure Schemes to support sustainable agriculture*, Green Alliance and National Trust
- ⁸ Department for the Environment, Food and Rural Affairs (Defra), November 2017, ‘Numbers of commercial holdings and land areas / livestock numbers by size group: England’
- ⁹ Seventy four per cent of SMEs undertake some form of business planning. Research undertaken by the Centre for Economics and Business Research (Cebr), 2015. Cited at: www.npowermediacentre.com/r/5307/poor_planning_could_be_costing_british_businesses__25 (accessed 6 September 2018)
- ¹⁰ Defra, February 2018, *The future farming and environment evidence compendium*
- ¹¹ Centre for Economics and Business Research, op cit; Defra, February 2018, op cit
- ¹² A Francis, S Armstrong Brown, W Andrews Tipper and N Wheeler, 2016, *New markets for land and nature: how Natural Infrastructure Schemes could pay for a better environment*, Green Alliance and National Trust
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