

Increasing investment in natural capital

November 2017

This paper explores the current state of play in the natural capital finance market and ways to increase investment in this crucial area to deliver the UK's environmental goals and boost economic growth.

Section I provides a background on natural capital, including what types of natural capital projects exist and the investment case (page 2). Section II looks at some of the most significant barriers to investment (page 5) while Section III considers solutions to increasing investment, looking at both facilitative levers and financial mechanisms (page 7). Section IV concludes with several recommendations for how government can support the growth of this nascent market (page 16).

Key Messages for policymakers

One of the greatest barriers to private investment in Natural Capital is the lack of reliable revenue stream. There are several actions the private sector can take to overcome this barrier and boost the market which are set out below. Meanwhile the government should:

1. **Reform agricultural subsidy** payments following the UK's exit from the European Union, focussing on payments for agri-environmental schemes and projects which deliver public benefit. This will require a robust set of metrics to be developed to ensure efficient use of subsidy, but can provide a reliable revenue stream whilst improving the productivity of agriculture;
2. **Set up an innovation fund** that provides resources for financial intermediaries and the private sector to invest their time and expertise into the market to develop new financing models and aggregation methods, taking lessons from Big Society Capital
3. **Create a Natural Capital Investment Fund** that provides seed funding for priority natural capital projects across the country, with a requirement to leverage private finance
4. **Provide greater access to technical assistance** to enable capacity-building and technical expertise for natural capital ventures. This could take the form of extended expertise within the British Business Bank, or a new institution modelled on the Investment and Contract Readiness Fund;
5. **Establish an offsetting framework for developers** through planning frameworks such as Section 106 payments. Local authorities should be encouraged to require biodiversity net gain in all new developments.

Further policy recommendations and greater detail on the above are set out in Section IV of this paper (page 16).

I. BACKGROUND

What is natural capital?

Natural capital describes the stock of renewable and non-renewable natural resources (i.e. plants, animals, air, water, soils, minerals) that provide a flow of benefits to people and our economy, including ecosystem services such as the provision of healthy air, clean water, food, timber, livelihood and opportunities for recreation as well as the regulation of flood risk and climate change through carbon sequestration. A natural capital approach considers impacts and dependencies on the natural environment to value natural capital.¹

All the reasons for protecting and restoring the natural environment cannot be captured by this approach and the term 'natural capital' has its critics, given the implicit commodification of nature. However, any business case for natural capital improvements relies on an assessment of the benefits of these goods and services. The term 'natural capital' has the advantage of opening up conversations with the investment world and of beginning to internalise the value that natural resources convey.

What natural capital projects exist?

Natural capital projects are wide ranging. They might include creating new wetlands for biodiversity gain and water quality, maintaining saltmarshes and peatlands for carbon sequestration, restoring woodlands to improve air quality and water storage, creating better urban environments through sustainable drainage systems (SuDS), or sustainable fisheries and marine protection.

Most existing natural capital investment is focused on carbon sequestration as it is a globally tradable benefit of natural capital thanks to the global carbon market. Other projects are usually because of a clear business case. A large supermarket chain may invest in soil quality improvement via their supply chain (farmers) as this will increase the resilience of their stocks into the future. Many projects have strictly localised benefits which cannot be traded, such as air quality improvement and livelihood.

In Nutfield Marsh in the east of Surrey, a range of stakeholders created four wetland nature reserves, delivering restoration of former mineral workings, flood alleviation for Redhill, publicly accessible green space with health and wellbeing benefits, biodiversity conservation and habitat enhancement and opportunities for development of the local leisure industry.² These outcomes benefit the local population, local businesses, the NHS and others variously. Notably the majority of beneficiaries did not invest in the Marsh.

¹ See more: Aldersgate Group (November 2015) [Investing in our natural assets: how government can support business action](#)

² Surrey Nature Partnership (November 2015) [Naturally Richer: a Natural Capital Investment Strategy for Surrey](#)
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The problem of multiple beneficiaries

Many stakeholders can benefit from a natural capital project. This can lead to a 'free rider' problem, where some receive the benefits for free while others pay, which may prevent potential investors from investing as they feel that others are unfairly benefiting.

Having more than one beneficiary paying for the services received can diversify cash flow, making an investment less risky whilst overcoming the free rider problem. However, incorporating too many beneficiaries can make a project very complex, increasing transaction costs and making the project potentially less scalable.³ It is therefore important to select key beneficiaries and work collaboratively.

Why should we invest in natural capital?

Investing in natural capital can deliver or contribute to the provision of infrastructure services, reducing the amount and cost of conventional 'grey' infrastructure required as well as providing wider social and environmental benefits.⁴ These "natural climate solutions" can cost-effectively provide over one-third of the climate mitigation needed to 2030 to remain within the 2°C warming target.⁵ Moreover, services provided by ecosystems around the world are crucial to many supply chains and business models, providing the raw materials needed in manufacturing and most industries.

The natural capital asset class has qualities that make it a compelling investment proposition. It generally displays low correlation to other, more traditional asset classes because the state of natural resources are usually decoupled from macroeconomic developments, which facilitates diversification of investment portfolios.⁶ This means that when other investments are performing poorly due to

wider economic downturns or inflation for example, natural capital investments may be protected. They also carry lower risk at the construction stage than other infrastructure. Woodland planting, peatland restoration and catchment management tend to be established processes that are well understood by conservation groups.

Investing in natural capital will be crucial to meeting over half of the UN's Sustainable Development Goals (SDGs)⁷ which the UK is committed to, and will be necessary to deliver the UK's forthcoming 25 Year Environment Plan (25YEP) as well as the Clean Growth Strategy and Industrial Strategy.

³ Forest Resilience Bond (2017) [Fighting fire with finance: a roadmap for collective action](#)

⁴ National Infrastructure Commission (June 2017) [The impact of the environment and climate change on future infrastructure supply and demand](#)

⁵ Griscom et al (October 2017) [Natural Climate Solutions](#), Proceedings of the National Academy of Sciences of the United States of America

⁶ Credit Suisse (January 2016) [From Niche to Mainstream: The Building of an Institutional Asset Class](#). Note however that much of the economy is still ultimately dependent on use of natural resources, so degradation of natural capital can result in a macro-economic failure, but the link is not usually explicitly recognised by markets

⁷ Natural Capital relates to SDGs 2, 3, 6, 9, 11, 12, 13, 14 and 15

Who invests in natural capital?

Currently most projects are funded by public agencies, conservation organisations and landowners with a social and environmental imperative, such as the Wildlife Trusts or National Trust.

Industry plays a role in natural capital protection – particularly globally – as part of corporate social responsibility (CSR) but more importantly in order to protect and improve their supply chains. For example, SAB Miller undertook a scenario analysis for their procurement of malting barley in Rajasthan, India, increasing yield by 55% whilst reducing water use and carbon emissions.⁸ Domestically, those operating in regulated markets such as the water industry may have additional incentives. For example, Anglian Water has built relationships with farmers to incentivise the reduction in pesticide use, reducing the need for water treatment.⁹

Natural capital projects are potentially suitable for a range of investor classes, with the appropriate investor depending on the project type. Some, such as retrofitting SUDs, may show returns within 3-5 years¹⁰ and are therefore suited to short-term investment, whereas planting new woodlands takes decades to demonstrate benefits, thus requiring long-term, or ‘patient’ capital. In general, returns from natural capital do tend to be longer term.

There has been a lack of interest from mainstream investors in this market to date. Even bodies with a clear mandate such as the former Green Investment Bank (GIB) have struggled to break into this space.

This is partly because the market lacks a track record and is high risk, therefore driving up the cost of investment. Most projects are also early-stage projects which fall outside the risk appetite of institutional investors, but also lack the returns to appeal to venture capital. As the market is not established they also tend not to be attractive to retail lenders such as high-street banks. Due to the local benefits of natural capital projects, such as improved air quality and recreational benefits, there may be scope for community finance to fund local projects.

There is a clear need to increase the amount of private capital investment in natural capital.

⁸ Cambridge Natural Capital Leaders Platform (November 2013) [The \(Sustainable\) Business Case for Natural Capital Valuation](#)

⁹ See Anglian Water website: <http://www.anglianwater.co.uk/environment/our-commitment/our-plans/working-with-farmers.aspx>

¹⁰ Business in the Community (April 2017) *Water Resilient Cities: The multiple benefits of a strategic retrofit of SuDS in schools across Greater Manchester*

II. BARRIERS

Why is there a lack of investment?

There are multiple barriers to investment in natural capital. Some of the most pressing barriers are described below.

1. Revenue stream

By far the greatest barrier to investment in natural capital has been that of generating a reliable and recognised revenue stream: **if you were to take out a loan to finance a natural capital project, how would you pay it back?** How can a profit-seeking investor make returns if they invest in peatland restoration? This is at the root of the lack of investible propositions and investment pipeline.

The services provided by nature have traditionally remained under or un-valued, though they often provide quantifiable financial benefits, particularly in terms of avoided costs (such as healthcare)¹¹ and unquantified benefits like wellbeing.¹² Often realisable returns are only a fraction of the benefits actually delivered by an investment. Benefits accrue to a wide grouping and often over the long term.

Natural capital approaches have sought to take the first step in addressing this by creating a correlation between these resources and the benefits they convey. The Office for National Statistics (ONS) valued the removal of harmful pollution and carbon dioxide by woodland at £1.8bn in 2015, based on the avoided health costs associated with respiratory and cardiovascular illnesses and subsequent years of life gained and deaths avoided.¹³ However avoided costs do not currently

constitute revenue. The insurance industry could deliver revenue streams based on avoided costs (see 'Insurance Products' below).

2. Structure: scale and liquidity

Natural capital projects by design tend to be at a relatively small scale, taking place at a local or catchment level. Investors typically favour large-scale projects to maximise value for money. Institution investors for example have minimum investment amounts of €25 million to €50 million.¹⁴ This disadvantages small scale investments, where investors incur high costs for identifying projects (search), evaluating them (due diligence) and for completing the transactions. Projects also often vary hugely, so cannot be consolidated to provide economies of scale.

A second challenge related to scale is that small projects run by conservation groups or farmers may not have sufficient assets to offer as collateral, limiting access to traditional debt financing (i.e. loans) from banks. This is a significant restriction for those that lack the financial literacy to engage in complex or innovative finance models.

Finally, natural capital infrastructure is inevitably an illiquid asset. Prudential regulations (such as Solvency II)¹⁵ place limits on institutional investors' capacity to take a stake in illiquid assets and places unfavourable capital treatment upon these assets, resulting in a lower return on capital, reducing the attractiveness and affordability of such investments at the institutional investor level.

¹¹ Natural England has estimated that if every household in England had equitable access to good quality green space, then £2.1bn could be saved in averted health costs. Natural England (2009) [Our Natural Health Service: The role of the natural environment in maintaining healthy lives](#)

¹² University of Essex (2013) *Ecominds effects on mental wellbeing: an evaluation for Mind*

¹³ ONS (25 July 2017) ["UK natural capital: ecosystem accounts for freshwater, farmland and woodland"](#)

3. Silos of expertise

The expertise required for investment in natural capital remains siloed, with little overlap of knowledge between the conservation and financial industries. Project developers lack the support they need to structure investable propositions and bring projects to a stage of investment-readiness. As the market remains niche, most investors lack the internal resources required to dedicate towards evaluating natural capital investments, creating a vicious circle.

Public support for capacity building on the project developer side is needed to generate greater interest in the market. Using investment mechanisms that are simple to understand and which mainstream investors are already familiar with can then help to overcome this 'expertise' barrier.

4. Lack of standardised data and transparency

Data around natural capital investment outcomes and tools for interpreting that data are currently insufficiently mature. There are significant gaps in knowledge around natural capital generally, and a lack of joined up approaches to data collection, measurement and monitoring of the UK's natural assets. For example, there is no single method for collection or date for baseline data and some assets (e.g. soils) have yet to be assessed in detail across the whole country. Many different agencies are responsible for data collection, resulting in gaps and duplications across the board.¹⁶

Natural Capital Accounting has been an important development for documenting assets and liabilities relating to nature in a balance sheet format that extends traditional financial reporting, but this remains a voluntary framework that many in the finance community are not familiar with. At present, "there is no single integrated agreed framework that provides financial institutions with a clear introduction to natural capital issues, or with a structured process to identify, measure and value their impacts and dependencies on natural capital."¹⁷ This is something that the Natural Capital Coalition is attempting to address in its Finance Supplement.

¹⁴ HMG Patient Capital Review (2017) *Financing Growth in Innovative Firms*

¹⁵ European Union Directive 2009/138/EC harmonising insurance regulation

¹⁶ Natural Capital Committee (September 2017) [Advice to Government on the 25 Year Environment Plan](#)

¹⁷ Natural Capital Coalition (November 2016) [Briefing paper: Finance Sector Supplement to the Natural Capital Protocol](#)

III. SOLUTIONS

The challenges for natural capital investment are numerous and complex. Multiple solutions targeting different aspects will have to work in tandem to establish a more mature market. Whilst some can be supported through government intervention, many will also have to be delivered through innovation from business, investors and communities. There are both facilitative levers and financial mechanisms which can underpin the market.

Facilitators

3. Corporate action

The private sector owns and manages much of Britain's natural capital¹⁸ and businesses are perhaps the best suited stakeholders and potential investors in natural capital as a result of its impacts upon their supply chains and assets. For example, food retailers who rely upon consistent food stock availability will face insecurity of supply if soil quality degrades and reduces

agricultural yield. They therefore have a clear business case for investing in improving soil quality amongst their suppliers, creating a straightforward revenue stream. Where new investment is planned, corporate players have a chance to include natural capital add-on investments to ensure positive net environmental impacts.

Mobilising corporate action creates a natural inroad for institutional investors to become more involved in the market. Asset managers should be equipped to ask questions around natural resource dependencies to the companies in their portfolio, tilting investment away from those who do not have adequate risk management strategies. Corporate players are also in a strong position to engage with supply chains and with local conservation organisations, creating a link between on-the-ground initiatives and large-scale investment.

Case study: New Nature Economy

Interserve, Savills, Landmarc and the Cambridge Institute for Sustainable Leadership (CISL) are seeking ways for companies which benefit from the reduction of flood risk to finance natural flood management solutions at scale. One possibility identified is to provide natural flood management with the same warranty as for hard infrastructure solutions. A pilot test has been identified in the North West of England, which is home to major highways, a rail line, utilities and the National Grid which are at risk from flooding.

This solution offers an opportunity for landowners and farmers to recoup the losses expected from the removal of CAP payments post-Brexit for natural flood management which could enhance their income, reduce the need to increase production and may increase the value of the land. The businesses at risk from flooding have an obligation to mitigate against flooding or have a mandate to supply clean water, so developing a mechanism can have benefits such as lower insurance premiums, reduced cost of clean up or repair, and saves water treatment costs. The pilot will aim to identify how slow water and ecosystem services providing flood mitigation can be delivered between land owners and infrastructure owners; and to find a payment mechanism that works.

¹⁸ Natural Capital Committee (September 2017) [Advice to Government on the 25 Year Environment Plan](#)
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2. Better, more useful information

Highlighting operational risks and opportunities linked to natural resource management will transform the business case for natural capital investment. This relies on robust data. Widespread adoption of natural capital approaches can facilitate accurate calculations of revenues or other financial impacts like avoided costs. It will also draw out where the performance and value of a business is dependent upon the availability of well-managed natural processes and resources (such as water).

More robust natural capital data will provide transparency for investors to better understand the environmental impacts of investments as well as their portfolio risks. Clearly tagging investments that have natural capital benefits will help to build a useful data set linking natural capital to financial performance. That will make it easier to demonstrate revenue and/or lower investment risk, including reputational risk, facilitating additional investment. Credit rating agencies should also begin to incorporate natural capital factors in their analysis.

Businesses should learn from the best practice available, like application of the Natural Capital Protocol¹⁹, and use the data gathered to inform decisions. Accounting bodies have a role to play in mainstreaming and harmonising these practices, as the Institute of Chartered Accountants of England and Wales (ICAEW) are doing.

3. Aggregation

Aggregating natural capital projects into a single investment product like a fund or asset-backed security could help to lift the natural capital asset class from small-scale to the institutional investor level.

A variety of investors could invest directly into a natural capital fund. An intermediary body with appropriate expertise could then undertake due diligence and build a portfolio of natural capital projects on behalf of investors, bringing down transaction costs and risks. This could take lessons from the Green Investment Bank's experience creating energy efficiency funds to make capital available for smaller projects.²⁰

Projects funded through bank loans could be bundled into an asset-backed security along the model of mortgage securitisation. This may make early-stage funding for new projects more likely as it increases liquidity of the initial investment through a more tradeable product. The OECD estimates that annual issuance of green asset-backed securities could reach between US\$280-380bn by 2035 for renewable energy, energy efficiency and low-emission vehicles financing alone.²¹

Unlike energy efficiency, there is enormous diversity between natural capital projects, depending on geography, type (i.e. woodland vs. wetland) and size, all of which impact risk and returns, so aggregation may prove a significant challenge.²² Replicability in the creation of new projects will ease this: the government's current Pioneer projects across the country may provide structures

¹⁹ See more: <http://naturalcapitalcoalition.org/protocol/>

²⁰ For example, see the Smart Energy Finance vehicle: <http://www.reenergisegroup.com/news-and-blog/new-funding-available-to-help-small-businesses-become-more-energy-efficient/>

²¹ Climate Bonds Initiative (4 April 2017) "[Green Securitisation: Part of the climate finance suite: Can the EU lead the way?](#)"

²² Credit Suisse (2016) [Conservation finance: from niche to mainstream](#)

to allow for aggregation across similar themes. However, retaining local context to be effective on a practical level will be important as the market develops, adding to the challenge.

4. Voluntary certification

As it is a nascent market, any investments in natural capital will require safeguarding and monitoring to mitigate potential reputational risks, which can be communicated through certification systems. The Ecosystem Markets Task Force (EMTF), a 2013 industry-led review into business opportunities arising from the proper valuation of natural capital, recommended increased use of product certification, akin to schemes utilised in the fish and timber industries by the Marine Stewardship Council and Forest Stewardship Council, to help in “connecting consumers with nature”.²³ This could stimulate markets for ecosystem management in supply chains to demonstrate responsible stewardship, driven by consumer demand.

A separate investor-facing certification or verification programme may help to reduce risk and due diligence for investors. This could apply to the financial instruments (such as bonds, see below) or to the underlying natural capital assets. The appropriate criteria should be determined by the investment industry and conservation groups working in partnership.

5. Collaboration

In order to overcome the silos of expertise, greater collaboration is required between finance, conservation, landowners, developers and other key stakeholders. For example, the Coalition for Private Sector Investment, established by the International Union for the Conservation of Nature (IUCN) in 2016 plans to develop new investment models and funding pipelines that will help close the current conservation funding gap. It aims to serve as a hub, connecting investors and financial institutions with in-country partners who can help develop and execute investable deals that produce and environmental and financial return. It will initially prioritise forest landscape restoration, sustainable agriculture intensification, coastal fisheries and resilience, and watershed management.²⁴

In the UK, institutional beneficiaries of natural capital, such as the National Health Service and its Clinical Commissioning Groups should be involved in these discussions.

²³ Ecosystem Market Task Force (March 2013) [Realising nature's value: The Final Report of the Ecosystem Markets Task Force](#)

²⁴ IUCN (3 September 2017) [“New coalition launches to scale private conservation investment at IUCN World Conservation Congress”](#)

Mechanisms

6. Payment for Ecosystem Services (PES)

PES is a promising tool for mainstreaming this market, where the beneficiaries of an environmental service pay those who maintain the natural capital assets (e.g. ecosystem) that provides it. Wessex Water makes payments to farmers to implement improvements in their farming operations which helps improve water quality by reducing nitrates, phosphates, agrochemicals and sediment in surface run-off.²⁵ There are a number of such schemes in the water industry, where regulatory and financial incentives from Ofwat encourage innovation, but uptake in other unregulated sectors where the relationships between provider and beneficiary are more complex has been slow. Outcomes-focused regulation can provide a level playing field for businesses and support the roll out of a deeper PES market.

7. Offsetting

Developers should calculate the unavoidable residual ecological damage (impacts persisting after the normal mitigation hierarchy of avoid and reduce harm where possible has been followed) of new developments and seek to compensate for this damage. A developer may purchase credits from the local council or other provider to invest in conservation offsetting projects. Credits from several different smaller developments can be pooled and used for larger catchment or landscape-scale projects. Long-term local infrastructure plans create the certainty required to invest at the landscape-scale while providing an opportunity to piggy-back natural capital investment on planned 'grey' investment.

This requirement for offsetting could be incorporated into local planning laws with planning consent conditional on achieving biodiversity net gain.²⁶ With the agreement of Local Planning Authorities, this could become mandatory through Section 106 agreements.²⁷ Any move to mainstream biodiversity offsetting would need to be approached with care and the participation of a range of stakeholders to avoid unintended consequences and to increase trust in the planning system, which suffers from a perception of poor enforcement.²⁸

²⁵ Defra (May 2013) [Payments for Ecosystem Services: A Best Practice Guide](#)

²⁶ CIEEM, CIRIA & IEMA (2016) [Biodiversity Net Gain: Good practice principles for development](#)

²⁷ Section 106 is a legal agreement between an applicant seeking planning permission and the local planning authority, which is used to mitigate the impact of a new home on the local community and infrastructure, often requiring an upfront financial contribution. For example, a council might ask for a contribution to the local school for a new four-bedroom family house in an area with limited school places. <https://www.homebuilding.co.uk/what-is-section-106/>

²⁸ CIEEM (September 2013) [An Overview of Biodiversity Offsetting Within the Planning System](#)

The Environment Bank

Working with planning authorities, developers and landowners, the Environment Bank brokers biodiversity compensation agreements. It calculates the biodiversity impact of a proposed development and helps facilitate investment in wildlife conservation schemes via 'habitat banking'. For instance, a Local Planning Authority can agree with a developer that planning consent will be granted with the conditioned requirement of a Biodiversity Offsetting Scheme to compensate for residual biodiversity impact.

Long-term conservation management plans are submitted to the Bank that will, if funded, deliver biodiversity gain calculated to produce a certain amount of 'conservation credits'. The developer then buys the suitable number of credits to offset the impact of the development.²⁹ Habitat banking requires reliable anticipation of unavoidable damages likely to arise and confidence that compensation requirements will be enforced to expect returns on investment. This can be facilitated through Local Plans which provide forward-looking clarity on likely impacts and through the creation of a regulated market, as recommended by the EMTF.

8. Green bonds

The green bonds market has grown rapidly over recent years: Moody's credit rating agency predicts the market will reach \$206bn in issuance in 2017.³⁰ Green bonds have been popular for increasing liquidity of green investments and corporate green bond issues have been over-subscribed, implying a strong demand.³¹ There is scope to increase the use of green bonds for natural capital projects. However, bonds require steady and regular yield, which ultimately relies upon having a revenue stream.

One possible solution is to tag natural capital projects on to regular bonds, where the product remains familiar and returns are steady for the potential investor, with additional reputational benefits arising from the natural capital element.

Another would be to develop metrics for natural capital bonds, akin to the 'tonnes of carbon saved' measure applied to many green bonds, to increase attractiveness to impact investors who may look beyond only financial returns.

Municipal bonds are a subset of green bonds that can be used for local resilience. Proceeds can be put towards natural capital projects which have a direct benefit for the area. For example, local authorities can issue a bond which funds a natural flood management scheme, reducing future liabilities in the event of a flood. Municipal bonds also benefit from the clear accountability for where proceeds are being spent. This is a growing field: the State of California issued over \$1.3bn of municipal green bonds in 2016, including \$500m bond from the San Francisco Public Utilities Commission for clean water projects.³²

²⁹ Environment Bank website: <http://www.environmentbank.com/index.php>

³⁰ Bloomberg (10 March 2017) "[Green Really is Gold for These Bond Lovers](#)"

³¹ Schroders (July 2015) [Green Bonds – A Primer](#)

³² CALED (19 January 2017) "[California Green Muni Bonds Top \\$1.3 Billion in 2016](#)"

Case study: stormwater runoff bond in Washington DC

In September 2016, DC Water and Sewer Authority (DC Water), Calvert Foundation, and Goldman Sachs announced an Environmental Impact Bond to fund green infrastructure to manage stormwater runoff in Washington DC, USA. DC Water issued the bond, which is structured to incentivise innovation by sharing risk between DC Water and the private investors. DC Water was interested in testing green infrastructure but has a mandate to ensure its financial decisions are in the best interest of its rate payers. By using a risk-sharing approach, this enables DC Water to trial innovative approaches.

The funds will be used to test whether acres of new green space will absorb stormwater and reduce its flow into the existing sewer system as a less expensive and more environmentally attractive solution. The expected return under the base case is 3.43%. If the green infrastructure is more effective than expected, DC Water will pay investors a bonus “outcome payment” of \$3.3m, a potential return of around 6.4%. If runoff reduction underperforms, investors will pay a “risk sharing payment”, reducing the effective return to 0.5%.

DC Water worked closely with the Water Environment Federation to create a job training and certification program for Green Infrastructure construction and maintenance and has pledged to hire at least 51% of their workers from the DC community.³³

Resilience bonds are another emerging mechanism. The RE.bound³⁴ initiative is seeking to make use of the catastrophe bond structure³⁵ to transfer insurance risk to investors whilst generating new pools of investment for risk-reduction projects – transforming catastrophe bonds into ‘resilience bonds’. For example, the impacts of a flood risk reduction investment are modelled to generate a ‘resilience rebate’ (i.e. avoided costs), both on the insurance premiums to be paid and on the coupon to investors. Those rebates are then put into a fund to finance the resilient infrastructure project, reducing the risk of flooding and therefore improving the probability of high returns.

Some reputational concern has begun to arise around the relatively new market.³⁶ A Chinese power generator recently issued \$160m of green bonds to fund a coal-fired power plant³⁷ for example and only 38% of green bonds currently have impact reporting in place.³⁸ The Climate Bonds Initiative and the Green Bond Principles are working to ensure robustness through certification and standards. Moody’s published a Green Bonds Assessment methodology in 2016 to assess an insurer’s approach to green bonds.³⁹ As the market matures, better systems and transparency will be required to provide assurance to investors that the bonds are having a positive environmental impact.

³³ Duke Fuqua School of Business (13 January 2017) “[Diving into the 1st Ever Environmental Impact Bond: Q&A with Beth Bafford of Calvert Foundation](#)”

³⁴ RE.bound (September 2017) [A guide for public-sector resilience bond sponsorship](#)

³⁵ Catastrophe bonds (or ‘cat bonds’) are used by the insurance industry to transfer the financial risk of a natural disaster to investors. If a disaster occurs within the bond period the insurance company uses proceeds from the bond sale to pay off the losses, while investors lose some or all of their investment. If a disaster does not occur, the investors receive high returns.

³⁶ Schroders (July 2015) [Green Bonds – A Primer](#)

³⁷ Reuters (4 August 2017) “[China coal-fired power plant issues green bonds](#)”

³⁸ Climate Bonds Initiative (July 2017) [Post-issuance reporting in the green bond market](#)

³⁹ Moody’s Investor Service (30 March 2016) “[Announcement: Moody’s publishes methodology on Green Bonds Assessment](#)”

9. Insurance products

The insurance industry is one of the few sectors that can draw a direct financial link to ecosystem services through avoided costs. Lloyd's of London found that insurers have paid out more than \$200bn in coastal flood damage in the past decade, which could be reduced with more investment in natural infrastructure such as reefs and wetlands.⁴⁰

Lloyd's of London has suggested that greater resilience should result in lower insurance premiums. Incorporating resilience through natural capital solutions in calculating insurance premiums could be an

effective way of stimulating the market (see resilience bonds, above). Although the illiquid nature and scale of natural capital projects prevents the insurance industry from directly investing, creating innovative insurance products could have a huge potential. Insurance companies must work in partnership if this is to be successful, otherwise free riders will undercut participating insurers, disincentivising initial investment. Government should work with the industry to identify products and platforms to stimulate this market.

Case study: reef tourism in Cancun

Swiss Re and the Nature Conservancy have established an insurance policy for a coral reef off the coast of Cancun in Mexico. Premiums will be paid by local hotels and government which are dependent on tourism. The collective premium is likely to be between US\$1m and \$7.5m and up to \$70m in any given year will be released to pay for repair of the reef in case of a storm. Alongside tourism, the coral reef provides a natural brake against destructive storms and is a vital part of the marine ecosystem.⁴¹

10. Community finance

This community finance model popular for renewable energy could be replicated for local conservation projects. Community crowdfunding and ISAs linked to community renewable energy⁴² are retaining positive benefits within the community and currently offering favourable returns of around 5%.⁴³ Natural capital projects are unlikely to be able to offer comparable returns without

dependable revenue however. A crowd-funding model without returns may be more appropriate as the community may not be revenue-driven,⁴⁴ but it is also unlikely to bring in the volume of finance needed to scale up natural capital investment. One possibility is that it could act as a form of seed-funding for early-stage projects before they are taken up by other investors.

⁴⁰ Lloyds (June 2017) [Financing Natural Infrastructure factsheet](#)

⁴¹ The Guardian (20 July 2017) "[Mexico launches pioneering scheme to insure its coral reef](#)"

⁴² See Mongoose Crowd for example: <https://communityenergyengland.org/news/mongoose-energy-launches-uk-s-first-dedicated-crowdfunding-platform-for-community-energy>

⁴³ The Abundance Swindon ISA is offering 6% IRR for example

<https://www.abundanceinvestment.com/projects/swindon-common-farm-solar>

⁴⁴ For example, a beach in New Zealand was bought to be run as a national park <http://www.bbc.co.uk/news/world-asia-36759321>

11. Preferential loans

Long-term loans and subsidised low-cost loan repayments, potentially with credit guarantees, could help launch small-scale and early-stage projects. Retail banks are unlikely to offer preferential loans without regulatory drivers, but multinational

development banks (MNDs) or a public bank could offer favourable rates to projects that deliver net improvement to the state of the natural environment.

The Natural Capital Financing Facility

The European Investment Bank (EIB) and the European Commission have partnered to create the **Natural Capital Financing Facility (NCFF), a financial instrument that supports projects delivering on biodiversity and climate adaptation through tailored loans and investments, backed by an EU guarantee.** Projects financed through the NCFF need to generate revenues or demonstrate cost savings. Along with the financing facility, there is a technical assistance facility that can provide each project with a grant of up to a maximum of €1m for project preparation, implementation and the monitoring of the outcomes.

The facility is currently in a pilot phase and can sign up projects until the end of 2019. The first loan was signed in April 2017. It will provide both debt and equity instruments. The NCFF has a total of €100m for the financing of 9 to 12 operations, with an additional grant support facility of €10m for technical assistance. The term will typically be up to 10 years plus potential extensions.

The primary aim of the NCFF is to provide proof of concept to demonstrate that nature-based climate adaptation projects can be financed through innovative and sustainable market-based mechanisms. The ultimate objective is to demonstrate to investors their attractiveness for the longer term, in order to develop a sustainable flow of capital towards those projects and achieve scale. The focus is on projects which are at an advanced stage of development and have the potential to be replicated within the EU.

12. Blended finance

Blended finance is the strategic use of public or private funds to leverage and mobilise additional capital flows (public and/or private) to new markets.⁴⁵ It can bring in different risk appetites, time frames and objectives, ensuring that the appropriate partners are in place to finance projects at each stage, providing access to finance over its lifetime and enabling greater liquidity. It has contributed significantly to catalysing capital for other emerging markets (such as social finance), extending the reach of capital and reducing exposure to risk.⁴⁶

The private sector is taking an interest in this model. Bank of America Merrill Lynch launched the Catalytic Finance Initiative (CFI) in 2014, which creates a blended capital model, allowing partners with different expertise and risk appetites to take part in financing.⁴⁷ CFI partners including HSBC, the European Investment Bank and the International Finance Corporation bring expertise in a broad range of financial specialty areas including clean energy infrastructure finance, green bonds, project finance, green asset-backed securities, emerging markets investment and advisory assistance, and approaches to blending public and private finance.

⁴⁵ OECD & World Economic Forum (September 2015) [Blended Finance Vol. 1: A Primer for Development Finance and Philanthropic Funders](#)

⁴⁶ OECD & World Economic Forum (January 2016) [Insights from Blended Finance Investment Vehicles & Facilities](#)

⁴⁷ Bank of America (6 April 2016) [“Catalytic Finance Initiative Brings Together Banks and Investors, Directs \\$8 Billion in Capital for High-Impact Sustainable Projects”](#)

IV. THE ROLE OF GOVERNMENT

Many of the solutions above require action from the private sector. However, government support will be vital to accelerate investment in natural capital, by stimulating the number of investible projects and creating conditions for additional investment.

Set out an overarching framework to generate an investment pipeline

1. Publish robust 25 Year Environment Plan

The long awaited 25 Year Environment Plan will be the key vehicle to reverse the degradation of our natural environment. It must include **legally binding targets** with robust action plans to meet them to send the clear, long-term signals needed to create a pipeline of investible projects and reinforce the economic case for investing in natural assets. Stable, outcomes-focussed regulation will help unlock new markets for ecosystem services.⁴⁸

2. Reform the agricultural subsidy system

The UK's exit from the European Union presents an unprecedented opportunity to reform agricultural payments. Payments linked to agri-environment schemes and natural capital improvements, such as soil improvement, could generate a reliable revenue stream over the long term whilst improving productivity of agriculture. This will require a robust set of metrics to be developed to ensure efficient use of subsidy. Incentives for better land management, pricing ecosystem services and monitoring systems can also motivate

local businesses, landowners and a wider stakeholder base to engage with natural capital.

3. Absorb learnings from the private sector and facilitate greater action

Government should also work closely with the business community to incorporate learnings from the application of the Natural Capital Protocol, corporate natural capital accounting and business investment in natural capital enhancement projects in policy design. In turn, government should step in where private sector players are undermined by free riders and encourage large businesses to engage with their supply chain.

4. Embed natural capital data in decision making

The government should explore what role the ONS can play in supporting the capture, standardisation and distribution of natural capital data, particularly at the local scale. The ability of the Department for Environment, Food and Rural Affairs and its agencies to continue to engage meaningfully in this area must be maintained even in the context of reduced budgets.

Natural capital thinking must also be applied across other key Whitehall departments, such as the Department for Communities and Local Government, the Department for Transport, and the Department for Business, Energy and Industrial Strategy (BEIS) and must be considered fundamental to all infrastructure planning. Government should lead by example by taking a net gain approach in major infrastructure projects like HS2.

⁴⁸ See Aldersgate Group briefing, *Key asks for the 25 Year Environment Plan* for further detail
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Public sector bodies and regulated industries who own and manage natural capital must have responsibility for maintaining it enshrined in their licenses. Stewards of natural capital, such as landowners, should be required to report on their management of assets through corporate natural capital accounting frameworks. This would encourage greater maintenance of their assets whilst identifying potential beneficiaries with whom they could set up PES schemes.

5. Provide further details on actions in the Clean Growth Strategy

The government's recent Clean Growth Strategy highlighted several actions to stimulate the natural capital market, including setting up a stronger and more attractive carbon offsetting market which will incentivise emissions offsetting through tree-planting, establishing forestry investment zones to offer investors streamlined decision making and more certainty, and working with industry to increase the use of UK timber in construction,⁴⁹ driving market demand for timber products. These actions are very welcome, and we look forward to receiving further details on implementation and how this can be extended beyond forestry.

6. Collaborate internationally

It will be important to contribute to and absorb learnings from ongoing work at the UN-level on financing the SDGs to honour the UK's commitments.⁵⁰ Collaboration with international partners will help identify promising areas for innovation and ensure the UK remains a world leader in green finance.

Develop a finance strategy to stimulate private investment

7. Set up funds to promote innovative financing mechanisms and provide seed finance

A fund to promote innovative financing mechanisms can provide resources for private players – particularly financial intermediaries – to develop innovative financing models and aggregation methods. Government should take lessons from Big Society Capital which significantly stimulated the social investment industries.

A natural capital investment fund is needed to provide seed finance for priority natural capital projects across the country. This could take the form of a lending facility with long pay-back periods, low interest loans and/or credit guarantees. The fund should be required to leverage private finance, with unspent Section 106 payments pooled to provide additional capital.

8. Provide greater access to technical assistance

The British Business Bank already performs a technical assistance role for small and medium-sized enterprises as well as providing credit guarantees to increase the likelihood of projects without collateral or track record being approved for bank loans. With added natural capital expertise, it could assist with investment-readiness in this field. Learnings can be derived from the NCFE's technical assistance facility. Alternatively, a new institution modelled on the Investment and Contract Readiness Fund could be established for natural capital ventures, replicating its success in boosting social investment.

⁴⁹ BEIS (October 2017) *The Clean Growth Strategy: leading the way to a low carbon future*

⁵⁰ UNEP Finance Inquiry (June 2017) [Positive Impact Finance: a common vision for financing the Sustainable Development Goals](#)

9. Establish an offsetting framework for developers

Government could make better use of the planning system to ensure green infrastructure is integral to new developments, particularly with ongoing plans to boost housing supply. Local authorities should be empowered and encouraged to make use of impact assessments on natural capital in the planning process and to reach Section 106 Agreements requiring biodiversity net gain. This may require strategic communication from central government to convey the multiple local benefits associated with natural capital gain, alongside a clear regulatory framework to support early investment and ensure that biodiversity considerations are applied equally across the country.

10. Stimulate the UK's green capital markets

The government could consider issuing sovereign bonds or empower local government to issue municipal bonds. Given low sovereign risk ratings, government-issued bonds are a cheap form of financing the disparate public goods offered by natural capital. For example, payments could be used to fund ongoing flood risk reduction efforts, reducing the need for one-off large payouts following a flood. This should form part of a wider effort from Government to boost the UK green capital market and support broader green bond issuance, for example through standard setting and enforcing greater transparency, building on the work of BEIS's Green Finance Taskforce.

Case study: France's green bond

In January 2017, France issued a €7bn sovereign green bond. There are six eligible categories for use of proceeds from the bond, one of which is 'living resources and biodiversity', incorporating organic farming, sustainable forestry, biodiversity protection and protection of natural areas. The six categories are derived from the "Transition Energétique et Ecologique pour le Climat" (TEEC), an official label for mutual funds aiming at promoting the energy and environmental transition.⁵¹

⁵¹ Government of France (10 January 2017) "[Framework for the Green OAT](#)"
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