Finance Workstream

Literature Review

Oct/2024

Disclaimer: *This document is prepared as part of the Mainstreaming Nature-based Solutions programme and should only be used for its intended purpose. No responsibility is accepted for any reliance placed on this document by third parties. The conclusions and recommendations are based on research and stakeholder consultations conducted through the programme or by other organisations and programmes and are subject to change. Changes to findings reflect the innovative nature of the programme and are expected as the programme progresses and as our understanding evolves.*

Issue & Revision Record

Revision	Date	Author	Description	Checked by	Approved by
A	Sep/2024	Vicky Vanderstichele	First issue	Jerome Tagger	Granville Davies
B	Oct/2024	Vicky Vanderstichele	Update following comments	Jerome Tagger, MNbS Funding and finance task and finish group and technical working group	Granville Davies

Contents

Figures

1. Current Approaches

1.1 Introduction and context setting

The literature review to date simultaneously exposes a wide variety of approaches to the financing of NbS, as well as only a handful of financing mechanisms. These mechanisms have limited scale and impact. In the UK, these usually entail small- to medium-sized projects, focussing on one or two NbS, with the monetization of ecosystem services the predominant financing model. These current approaches, therefore, only give us a narrow view of what could work in terms of financing and mainstreaming NbS at scale.

To understand this analysis, we must start with a distinction between two approaches to NbS financing: (i) payments for ecosystem services; and (ii) investment in NbS. While both payments for ecosystem services and investment in NbS allow money to flow towards NbS, there are different mechanisms at play with very different potential and outcomes as a result.

Investment in NbS requires traditional forms of corporate finance such as debt and equity. The relationship between the parties involved is that of either "lender / borrower" or "company / shareholder". Investors who invest via debt or equity do not purchase ecosystem services themselves; they instead invest in the underlying project or entity producing such ecosystem services. So that they receive a financial return on their initial investment, investors want to see the underlying entity succeed in the long-term. For this reason and because the sums of money involved in such investments can be very large, these relationships are typically long-standing and structured.[1]

By contrast, payments for ecosystem services are a transaction between a buyer and a seller of services. The relationship between buyer and seller is generally short-term; it usually ends once the ecosystem service or the good related to such service (e.g. a credit) is delivered. As compared with traditional forms of investment, buyers of ecosystem services are less interested in the ongoing success of the underlying project or entity producing the ecosystem services. The majority of current NbS financing comes from the payment of ecosystem services and makes use of the buyer / seller relationship. In theory any entity can be a buyer but there are practical barriers which limit their types in practice, as we shall see.

Currently the financing of NbS projects relies heavily on payments for ecosystem services. These finance flows are often directed towards localised and small-scale projects. It is our view that to effect systemic change and to mainstream NbS, we need to attract large-scale investment from the mainstream financial institutions such as banks, insurance companies, and pension funds. There is a notion that mainstreaming could be achieved by having a large number of actors each making small investments; however, we believe this is fraught with difficulties, including because of high transaction costs and because of what it would

[1] For the sake of clarify, in this literature review, we will refer to this form of finance as "investment" (with the verb being "investing in").

take to train and educate a much larger pool of individuals (with little bandwidth in the first place) and institutions on these questions.

In the Current Approaches chapter of the literature review, we first explore the different sources of finance (private, public or a mixture of the two). We then examine the different markets for ecosystem services which form the bedrock of the current landscape for financing NbS. Next, we introduce the types of investment instruments which are more commonly and currently used by mainstream financial institutions. To begin to understand how to attract investment from mainstream financial institutions we need to become more familiar with the terminology and investment instruments which such institutions use daily.

The next step outlines in more detail the key actors who are investing in NbS and/or buying ecosystem services. We consider further the crucial role that mainstream financial institutions could play in investing in NbS and provide our preliminary findings as to why such investment has so far been slow to materialise. We also identify the role that water utilities play or can play. We note that entities with a stake in local development will play a significant role in seeding and ultimately enabling engagement and catalysing investments by other, larger, organizations. This is the case whether the entities are municipal or local authorities, utilities or service providers, or institutions with a specific mandate (e.g. development bank or charities). This will be further fleshed out in subsequent chapters.

Finally, we will provide summaries of the most promising financing models and structures that have been utilised for financing NbS, as well as those that have not yet been put into practice.

2. Existing financing for NbS: sources and markets

The market for NbS finance remains in its infancy. There is no one-size-fits-all model, and financing structures for NbS remain complex and non-standard. Project sponsors rely on highly tailored structures, bespoke to the specific project and its location.[2] Most existing NbS projects use a combination of investment instruments, sourced from several different investors, comprising private, public or a "blended" approach.[3]

NbS projects, which make use of external investment, often also rely on payments for ecosystem services to provide a revenue stream for the project to offer a return and attract external investment. The Wyre Catchment Natural Flood Management Project (explored below) is a great example of a bespoke, location-specific project which makes use of blended finance and payments for ecosystem services. To understand the current landscape for NbS financing it is necessary to understand three things:

1. the sources of finance relevant to NbS (i.e. from what sector, private, public or both the finance stems);
2. the markets which currently drive most private finance flows to NbS (i.e. what is mostly confined to payments for ecosystem services); and
3. the entities involved.

Sources of Finance relevant to NbS

According to the 2023 UN Environmental Programme (UNEP) report "State of Finance for Nature", total global investment in NbS in 2022 amounted to roughly $200 billion. As Figure 1 shows, public financing provided roughly 82% of investment into NbS in 2022 (equalling roughly $165 billion), most of which was directed towards protection of biodiversity and landscapes ($75.9 billion). Private finance for NbS amounted to only 18% of total investment in NbS in 2022 (roughly $35 billion).[4]

To put these amounts into perspective, the same UNEP report estimated that in 2022 $1.7 trillion of public money was directed towards economic activities that were harmful to nature (exclusive of oil subsidies). This amount was more than 10 times greater than public investment in NbS in the same year.[5] Moreover, in 2022 private investment with direct negative impact on nature amounted to roughly $5 trillion, 140 times greater than private

[2] European Investment Bank (EIB), *Investing in Nature-based Solutions*, (Luxembourg: EIB, 2023), p. 6, accessed 10 July 2024, https://www.eib.org/attachments/lucalli/20230095_investing_in_nature_based_solutions_en.pdf.
[3] See below for more detail on the "blended" finance model.
[4] United Nations Environment Programme (UNEP), *State of Finance for Nature 2023*, (Nairobi: UNEP, 2023), p. 16, accessed 9 July 2024, https://www.unep.org/resources/state-finance-nature-2023.
[5] UNEP, *State of Finance for Nature 2023*, p. 8.

investment in NbS.[6]

Figure 1: Public and private finance flows towards nature in 2022

Public Finance

Public finance stems from government institutions, government agencies, quasi-government bodies, and development finance institutions. Public finance is often provided in the form of grants or subsidies. Currently most NbS projects have some form of public finance. To date, this has been the predominant form of finance for any NbS project.

Private Finance

Private finance can be separated into two buckets: philanthropic and commercial/for profit.

Commercial finance typically stems from private institutions such as banks, insurance companies, and asset management companies. These institutions either invest their own money, or that of other organizations such as pension funds, households, etc. They make investment decisions based on return expectations and the kind of risks they can take on. They are often bound by fiduciary obligations (i.e. obligations to manage money for the sole benefit of their clients or beneficiaries). These obligations typically make it impossible for them to accept financial returns below market standards.

By contrast, philanthropic financing has no explicit expectation of financial return on investment or financing. It is also not the unique province of foundations, charities and NGOs. Corporates can also provide philanthropic financing, often when they see reputational benefits or security in their supply chain. This is often the source of financing for NbS markets, as we will see below.

Blended Finance

Blended finance is a way of bringing together different sources of finance, where participants are willing to take on different levels of risk. In the context of NbS this mostly involves public or philanthropic organizations chipping in and "de-risking" investments to attract private finance. This is common when there is a strong public interest in doing so, and where there is no history of financial institution involvement. An analysis done by

[6] UNEP, *State of Finance for Nature 2023*, p. 8.

Finance Earth in 2021 showed that blended finance was used in 48% of all NbS transactions reviewed.[7]

NbS Markets – Payments for Ecosystem Services

Public finance has long been used to fund NbS projects; it is in private and blended finance where new approaches need to be thought of and implemented. Currently, the primary mechanism to enable private or blended finance to fund NbS is through payments for ecosystem services via NbS markets (whether voluntary or compliance driven).

Examples of compliance markets are the newly instituted Biodiversity Net Gain (BNG) legislation and Natural England's Nutrient Mitigation Scheme (NMS). On the other side, voluntary carbon markets (VCMs) can facilitate carbon removal, potential sources of innovation in NbS through carbon farming or ecosystem management. A brief overview of how the markets operate and key actors involved follows.

(Here, it may be useful to establish a distinction between payment for ecosystem services and offsets as the terms are often used interchangeably. Offsets involve payments for ecosystem services, but they happen in the specific context of a business or organisation looking to make up for its negative environmental impact elsewhere. However, having a negative impact is not a prerequisite for paying for ecosystem services).

Biodiversity Net Gain

The Environment Act 2021 created new BNG requirements across England. Residential and commercial property developers are required to deliver a BNG of 10%. There are three ways in which developers can achieve BNG: (1) The creation of biodiversity on-site; (2) A mixture of on-site and off-site creation of biodiversity if it is not possible to achieve a BNG of 10% on-site. This includes buying off-site biodiversity units on the market; and (3) Buying statutory biodiversity credits from the government if the first and second options are not possible. In 2021, the Nature Conservancy estimated the potential financing via the BNG market would be £100 million to £300 million.[8]

This market consists of buyers, facilitators, and sellers. Buyers include developers who are looking to buy biodiversity units. The sellers of biodiversity units include private landowners, local authorities and specialised banks such as the Environment Bank. Buyers and sellers can trade directly or via facilitators, including marketplaces such as the Environment Bank and local authorities who have set up their own BNG schemes. Overall, this market is relatively new and its impact untested.

[7] Finance Earth, *A Market Review of Nature-Based Solutions: An Emerging Institutional Asset Class*, (London: Finance Earth, 2021), p. 26, accessed 9 July 2024, https://finance.earth/wp-content/uploads/2021/05/Finance-Earth-GPC-Market-Review-of-NbS-Report-May-2021.pdf. Note that this report does not just focus on the UK but examines NbS financing globally.

[8] The Nature Conservancy, *Biodiversity Net Gain in England: Developing Effective Market Mechanisms*, Discussion Paper, (October 2021), p. 16, accessed 3 July 2024, https://www.nature.org/content/dam/tnc/nature/en/documents/TNC_BiodiversityNetGain_England.pdf.

Nutrient Mitigation Schemes

In March 2023, Natural England launched its NMS in the Teesmouth and Cleveland Coast catchment. The scheme allows property developers to purchase nutrient credits to discharge their obligations under the Habitats Regulations.[9] The scheme offers tiered options for developers to mitigate the impact of nutrients through development. When developers fail to meet the requirements of the Habitats Regulations, they can take actions such as mitigating on-site, arranging for mitigation off-site or purchasing nutrient credits. Nutrient credits are offered by Natural England in rounds to which developers can apply.

The actors involved in this market are much more limited than the other markets outlined in this section as the market is still in its early stages and limited to only a few catchments.[10] Natural England acts as the facilitator of the market and the seller of nutrient credits. The proceeds of the nutrient credit sales are used to finance subsequent mitigation projects.[11] As with biodiversity credits, the buyers of the nutrient credits are property developers.

Defra and DLUHC are investing up to £30 million to deliver nutrient mitigation.[12] In addition, the UK Government is opening another funding round for local authorities on behalf of affected nutrient neutrality catchments. This calls for proposals from local planning authorities to deliver high quality, locally led nutrient mitigation schemes.[13]

Voluntary Carbon Markets

Voluntary carbon markets are common. Carbon credits are generated through the certification of carbon removals and reductions through a variety of methods, including biological removals employing NbS. Examples of carbon removals from NbS include restoration of native forests, peatlands and wetlands. Examples of carbon reductions from NbS include forest protection.

Most demand for VCMs comes from the private sector, via companies "offsetting" their carbon emissions to meet Net Zero commitments.[14] These companies are the buyers of carbon credits. The sellers are typically specialised organisations which certify carbon removal and reductions through projects. The Climate Change Commission has stated that

[9] Natural England, 'Natural England's Nutrient Mitigation Scheme Devised to Protect Our Waterways from Pollution and Enable Home Building Has Now Launched', *Natural England Blog*, 31 March 2023, accessed 3 July 2024, https://naturalengland.blog.gov.uk/2023/03/31/natural-englands-nutrient-mitigation-scheme-devised-to-protect-our-waterways-from-pollution-and-enable-home-building-has-now-launched/.
[10] Another example of a catchment is Poole Harbour. Dorset Council has been awarded a £4.63 million grant from the UK government to identify and deliver mitigation projects and to sell nutrient mitigation credits for qualifying developments. The first round of applications for credits opened in July 2024. See more at https://www.dorsetcouncil.gov.uk/w/nutrient-neutrality-in-poole-harbour.
[11] Natural England, *Nutrient Neutrality and Nutrient Mitigation: A Summary Guide and Frequently Asked Questions*, (June 2022), p. 6, accessed 3 July 2024, https://publications.naturalengland.org.uk/publication/6248597523005440.
[12] Natural England, "Natural England's Nutrient Mitigation Scheme Devised to Protect Our Waterways from Pollution and Enable Home Building Has Now Launched'.
[13] See more at https://www.gov.uk/government/publications/local-nutrient-mitigation-fund-round-2.
[14] Climate Change Committee, *Voluntary Carbon Markets and Offsetting*, (October 2022), p.24, accessed on 3 July 2024, https://www.theccc.org.uk/wp-content/uploads/2022/10/Voluntary-carbon-markets-and-offsetting-Final.pdf.

demand for global carbon credits could grow by a factor of 100 by 2050.[15] However, markets are plagued by questions of integrity and are criticized for substituting credits for actual climate mitigation action, thus hindering their development.

There have been several regulatory developments in VCMs over the last year. For example, the European Commission has proposed a mandatory regulated scheme for the certification of carbon removals with minimum biodiversity and co-benefits requirements. Furthermore, the UK Government has launched a consultation on whether carbon removals should be integrated into the UK Emissions Trading Scheme (UK ETS). Including carbon removal credits into the ETS could unleash a large amount of finance into carbon markets.

Projects Combining Markets

The literature review has identified several interesting projects active in multiple NbS markets. One example is the Wendling Beck Project located near Dereham, Norfolk, where landscape interventions are financed by biodiversity credits, nutrient trading and carbon credits.

The Wendling Beck Project attempts to transform land use and management to restore habitats across the 2,000 acres site. The aim of the project is to use payments from ecosystem service markets (including BNG and carbon credits) to supplement farmer income.[16] If successful, the Wendling Beck Project will restore almost 2,000 acres of land and 5km of local rivers through NbS over a 30-year period.[17] Financing for the project has stemmed mainly from grant, pro-bono and philanthropic support alongside landowner contributions.[18] Eftec, an environmental economics consultancy, provided a market model to test the profitability of the project alongside a detailed finance and investment plan which includes both looking at the potential demand for BNG units and nutrient neutrality schemes.[19] An operating company was created to deliver the project.

Another example, The Ribble Catchment Project, aims to provide a model to support stacking and bundling of ecosystem services.[20] The project uses agreements between ecosystem deliverers and ecosystem beneficiaries. Though the project is in early stages, it is anticipated that financing for ecosystem interventions will be provided by various local organisations. The aim is that riverside reforestation could provide biodiversity, carbon, water quality and flood risk benefits.[21]

---

[15] Climate Change Committee, Voluntary Carbon Markets and Offsetting, p.25.
[16] Environment Agency, 'Wendling Beck Environment Project: Building Financial and Environmental Resilience for Farmers', *Environment Agency Blog*, 1 September 2023, accessed 3 July 2024, https://environmentagency.blog.gov.uk/2023/09/01/wendling-beck-environment-project-building-financial-and-environmental-resilience-for-farmers/.
[17] Environment Agency, 'Wendling Beck Environment Project'
[18] Green Finance Institute, 'Wendling Beck Exemplar Project', *GFI Hive Toolkit*, accessed 3 July 2024, https://www.greenfinanceinstitute.com/gfihive/toolkit/initial-project-scoping/wendling-beck-exemplar-project/.
[19] Green Finance Institute, 'Wendling Beck Exemplar Project'.
[20] Eunomia, *Governance of Blended Finance: Governance Structures and Corporate Entities for Partnerships*, (Bristol: December 2022), p. 68, accessed 4 July 2024, https://hive.greenfinanceinstitute.com/wp-content/uploads/2023/02/Governance-of-Blended-Finance.pdf.
[21] Eunomia, *Governance of Blended Finance*, p.70.

The Buyers of NbS

In theory, any entity can be a buyer of NbS. In reality, the buyers who have the greatest interest and incentives to be active in these markets are mostly corporates.

The largest private NbS finance flow in 2022 went towards biodiversity offsets and credits.[22] This can be partly explained by regulation and compliance schemes. However, corporates are also concerned with their own net-zero targets and reputation. Furthermore, companies are concerned with transforming their supply chain. In 2022 the second largest private finance flow for NbS amounted to roughly US$8.6 billion and was directed towards sustainable supply chains.[23] The idea is that it can result in cost reductions and increased environmental benefits.[24] [25]

There are several reasons why it is currently easier for corporates than investors to be involved in a project which looks to sell ecosystem services. Unlike financial institutions who have a fiduciary duty to find the "best" return on their investments, companies do not necessarily have to make a measurable financial return on their financing in NbS. They can justify their financing in other ways, such as reputation management, maintaining a social license to operate, or increased supply chain resilience.

As we consider scalable future solutions, it is important to note that large companies also typically have sophisticated internal systems and decision-making structures. This makes it easy for them to obtain external investment, which in turn they can use to buy ecosystem services or transform their supply chain. As we discuss in more detail below, a reputable company will likely have a credit rating which means that it can more easily access large amounts of finance, compared to, say, smaller firms, local authorities, or new projects.[26]

[22] UNEP, *State of Finance for Nature 2023,* p.20.
[23] UNEP, *State of Finance for Nature 2023,* p.21.

[25] EIB, *Investing in Nature-based Solutions*, p.57.
[26] EIB, *Investing in Nature-based Solutions*, p.56.

3. The current mainstream investment landscape

Payments for ecosystem services currently play a pivotal role in financing NbS. However, we argue that the monetisation of ecosystem services alone does not fully exploit the potential of the broader financial landscape. To unlock larger amounts of money, NbS project developers need to look to traditional forms of investment.

For context, the next section explains debt and equity, which form the bulk of financial investments. The following section provides a typology of investors and their involvement (real or potential) with NbS.

3.1 Debt and equity

Forms of Investment

Debt

Loans

In its simplest form, debt investment is where one or more financial institutions (the "Lenders") loan money to an entity (a "Borrower") which must be repaid either in instalments or after a certain amount of time has elapsed (once the loan "matures"). Interest on the loan must also be paid by the Borrower during the life of the loan or in one-lump-sum upon the maturity of the loan.

The loan can be secured or unsecured. If the loan is secured, then the Lenders will take security (e.g. a mortgage) over assets belonging to the Borrower which ordinarily covers the total amount of the loan. This means that if the Borrower does not repay the Lenders the full amount of the loan, the Lenders can sell or take possession of the secured assets to cover any shortfall. A secured loan is generally easier to obtain and has lower interest rates than an unsecured loan.[27]

Bonds

A bond is a different type of debt whereby an entity (the "Issuer") issues a bond certificate to investors in return for a certain amount of money. The Issuer then pays to each investor interest (or a "coupon") on the amount of the bond until the bond matures. When the bond matures, the Issuer must also repay the investors the original amount of the bond.

A key difference between loans and bonds is that, whereas private loans are often provided by a select group of financial institutions, bonds can usually be traded much more readily in the secondary bond market. As such, bonds can access a much broader investor base including pension funds, high net-worth individuals and financial institutions. For this reason, bond issuances generally raise significantly more money from a larger pool of investors than do private loans. Note that bonds are generally also unsecured.

[27] One related question for exploration is to ask what can serve as collateral in NbS projects.

Significantly, loans and bonds are more readily available to entities which are sophisticated and have a strong track record of successfully repaying debt. One measure which investors will look for in a borrower / issuer is a good credit rating. A credit rating is an indication of the likelihood of repayment of the debt.[28] Several agencies provide credit ratings including S&P Global, Moody's and the Fitch Group. The highest rating is AAA. The lowest rating is D. Anything from AAA-BBB is investment grade. Anything from BB-D is not. [29] [30]

It is worth noting that there are specific categories of bonds, typically called Green or Sustainability Bonds, where the use of proceeds (i.e. how the borrowed money is spent) is ringfenced to specific activities with environmental or sustainability objectives. Green Bonds are now regulated and standardised in the EU.[31] These are distinct from social or environmental *impact* bonds where repayment to the investor is linked to the successful achievement of a social or environmental outcome. It is not evident that either of these play any role in nature-based solutions at this stage.

Equity

Equity is a form of ownership of an entity. An investor can give money to an entity, usually in exchange for full or part ownership and share of profits of that entity. Such ownership is granted in the form of shares and the investor becomes a shareholder. Shareholders have certain rights over the company. For example, they ordinarily have a right to vote on certain decisions made by the company and can share in the profits of the company. Profits are issued to shareholders in the form of dividends. Shareholders also have a right to share in the assets of a company if it enters insolvency or is wound up. Importantly, the shareholders' right to any assets upon insolvency normally always ranks behind the right of any debt-provider to be repaid first. For this reason, equity investment is generally riskier than investment in the form of debt, and return expectations are accordingly higher.

Debt, Equity and Blended Finance

We discussed above the various sources of finance currently used to finance NbS (public, private and blended). It is generally agreed that the route towards unlocking investment in NbS lies in blended finance models. In blended finance, different types of investors participate in the investment structure, so that each one is exposed to a level of financial risk that they are able and willing to take on. If an institution is willing to take more of the risk, then it makes it easier for others to participate, because someone "has their back." This is an attractive model; however, the downside is that they are expensive to structure and

[28] Fitch Ratings, 'Rating Definitions', accessed 5 July 2024, https://www.fitchratings.com/products/rating-definitions.

[30] To give some examples, United Utilities has a credit rating of A- (according to the Fitch Group: https://www.unitedutilities.com/corporate/investors/credit-investors/ratings/, accessed 21 October 2024). The UK Government has a rating of AA (according to S&P Global: https://www.worldgovernmentbonds.com/credit-rating/united-kingdom/, accessed 21 October 2024).

[31] European Commission, 'European Green Bond Standard: Supporting the Transition', accessed 7 August 2024, https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/european-green-bond-standard-supporting-transition_en.

therefore hard to scale and replicate. Here are some examples of blended finance models which either are currently being used to finance NbS or could be used to finance NbS:

- Concessional investment is used to attract private debt from institutional investors. "Concessional" in this context means investment that is offered on more favourable terms to the borrower than would be offered by the market. The concessional investment is usually from public or philanthropic sources that may be used as first-loss capital whereby any losses incurred in connection with the project are first borne by the public/philanthropic entity rather than the private investors, thereby derisking the investment from the perspective of the private investors. (See section on the Green Fund below for an example).
- Bonds are issued by an entity with guarantees from public or philanthropic funders. A guarantee lowers the risk profile of the bonds because if the bond is not repaid the guarantor (i.e. the entity which provides the guarantee) steps in to repay the full amount to the bondholder.
- Grant finance from public or philanthropic entities is provided to build capacity or structure projects to attract institutional investment (see Wyre Natural Flood Management project below as an example).

3.2 Current and potential investors in NbS

The above sections explored the markets available for the purchase/sale of ecosystem services; and the forms of investment available to NbS.

This section provides a more detailed overview of the actors involved in the NbS investment landscape, specifically in relation to investment in NbS.

The key actors tend to fall into one of three categories:

1. **Governmental or quasi-governmental organisations**: for example, national, regional and municipal governments.
2. **Small or specialised investors**: for example, entities with sector-specific expertise and flexible tools to create novel investment solutions such as foundations, impact investment funds, and development banks.
3. **Institutional investors**: for example, asset managers and asset owners such as insurance companies or pension funds and banks.

We will consider each category in turn. However, we note again our belief that to mainstream NbS, much focus needs to be placed on unlocking investment from institutional investors given the large sums of money that these institutions direct.

Governments (national, regional and municipal)

To date, investment in NbS has been sourced largely from the public sector, primarily via government at the regional and national levels.[32] A 2023 report by the European Investment Bank found that "public funding [met] up to 91% of the current financing needs of projects

[32] Finance Earth, *A Market Review of Nature-Based Solutions*, p. 26.

at the EU level, covered by EU agencies, EU-based multilateral development banks, and national, regional and local governments".[33]

Governments fund NbS in several ways. They may finance projects completely or contribute to "blended" finance models. However, NbS projects tend not to be developed and financed at a national level. Since NbS need to be highly tailored to the specific landscape, it is often the case that regional and municipal authorities are involved in both the managing and funding of these projects. This includes entities such as utility companies who bridge the public and private realm. There are numerous examples (explored below) of utility companies investing in NbS. Because utility companies have a long-term investment horizon, the European Investment Bank has commented that they are among the best positioned to invest in NbS.[34]

Small or specialised investors

Foundations

Foundations are nonprofit philanthropic entities or charitable trusts that provide finance (normally in the form of grants) for organisations and individuals for a charitable purpose. Foundations that are involved in financing NbS include entities such as The Rockefeller Foundation and the Esmée Fairbairn Foundation. Foundations play an important role in blended finance models: they provide direct finance to NbS projects, they issue grants, and they leverage their expertise, know-how and relationships to attract private finance towards NbS.

Impact Investment Funds

Impact investing is a field of investing where the intention is to create beneficial social or environmental impact alongside financial returns.[35] In the UK the biggest player in this field is Better Society Capital (BSC**,** formerly known as Big Society Capital). It was established by the UK Government in 2012 using dormant bank and building society money as set out in the Dormant Bank and Building Society Accounts Act 2008.

BSC's latest impact report shows that most of their investing is in sustainable urban development (33%), followed by health and well-being (27%) and affordable and clean energy (20%).[36] Very little (if any) of the funding provided in these areas enables NbS.

An example of an impact investment fund which does invest in NbS is OnePlanet Capital. OnePlanet Capital, funded by private investors, focuses on investing in solutions for climate change. This ranges from renewable energies to the creation of new materials, and includes NbS.[37] For example, they have provided investment in Earthly, which helps companies invest

[33] EIB, *Investing in Nature-based Solutions*, p.50.
[34] EIB, *Investing in Nature-based Solutions*, p.56.
[35] Finance Earth and Economics for the Environment Consultancy, *Facilitating Local Natural Capital Investment: Literature Review*, NatureScot Research Report No. 1260, (2021), p. 15.
[36] Better Society Capital, 'Our Impact', *Impact Report 2023*, accessed 10 July 2024 2024, https://bettersocietycapital.com/impact-report-2023/our-impact/.
[37] One Planet Capital, accessed 10 July 2024, https://www.oneplanet.capital/.

in nature through NbS.[38] Though impact investment funds have started looking at NbS as part of their portfolios, the literature review shows that their investment is still very limited, small-scale, and often indirect.

Alongside BSC, there exists regional governmental impact investment funds such as the Greater Manchester Environmental Fund (GMEF), established in 2021. The GMEF is a charity which invests in projects which aim to improve the environment. GMEF was established to support Greater Manchester's five-year environment plan.[39] One of their projects is entitled Scaling Up Natural Capital Investment which was designed to stimulate investment into Manchester's peatland habitats. £100,000 of investment was provided from the Natural Environment Investment Readiness Fund.[40] Whilst GMEF has only accessed investment mainly in the form of grants and philanthropic donations to date, its long-term ambition is to identify multiple sources of finance as shown by Figure 2 below.

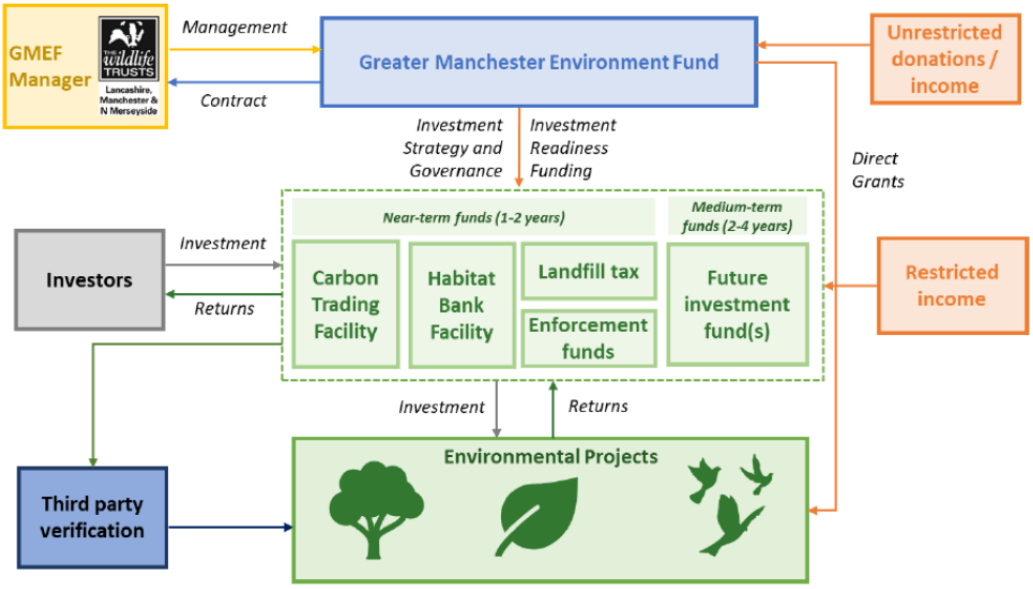

Figure 2: Proposed funding structure for Greater Manchester Environmental Fund (Source: reproduced from Greater Manchester Combined Authority, 'GM Environment Fund Update', September 2020, p.5.

Impact investment funds are generally asset managers (i.e. they manage other people's money – more on this below).

Development Financial Institutions

Development banks are a particular type of bank, generally established by governments to focus on investing in societally beneficial projects and corporations. As with governmental bodies, development banks can play an important role in blended finance models, attracting private finance by otherwise de-risking the investment for private investors. Similarly, development banks "also typically have a deeper understanding of the local context than global investors so act as an important bridge between the global and the local and can act

[38] Earthly, accessed 10 July 2024, https://earthly.org/.
[39] Eunomia, *Governance of Blended Finance*, p.59.
[40] GM Environment Fund, 'Scaling Natural Capital Investment Project', accessed 5 July 2024 2024, https://gmenvfund.org/projects/scaling-natural-capital-investment-project.

as aggregators of projects to give investable scale".[41] However, a report from the Global Center on Adaption argues that given their limited resources, development banks have increasingly begun to support smaller, specialised investors (such as by investing early in specialists' investment strategies) rather than investing directly in NbS projects themselves.[42]

Most development banks are directed towards developing countries, but domestic examples exist, such as the National Wealth Fund (formerly the UK Infrastructure Bank) and the Development Bank of Wales.

Institutional Investors

Insurance companies

Insurance companies have large pools of capital paid in by policyholders which is invested for financial returns. The insurance company relies on these financial returns to pay for any claims made by policyholders on their insurance policies. Aside from the capital they have available to invest, insurance companies may also get involved with NbS in several different ways. They may insure NbS projects.[43] They may also specifically invest in projects, including because it could reduce the risk of claims from their clients, for example to promote better flood management. As we will see in the next chapter, the literature review suggests that many believe the insurance sector is well-positioned to invest in NbS: their operations can benefit directly from the positive outcomes NbS provide.[44] However, this not an unanimous view. The Green Finance Institute observes that "*While it has been suggested that the insurance sector may seem an obvious stakeholder to invest in flood risk reduction, and act as a buyer of risk reduction in NFM projects, there is, to date, no real commercial incentive driving the insurance sector to pay for reduced flood risk – specifically through the delivery of NFM projects. In some cases, such as in the case of free riding, there are even disincentives.*"[45]

Insurance companies differ from other asset owners such as pension funds in terms of fiduciary obligations: as private companies, their obligations are to their shareholders, as opposed to beneficiaries.

Pension funds

Like insurance companies, pension funds manage large pools of capital which comprise of pension contributions from employees. Pension funds invest this capital with the aim that

[41] Van Raalte, D. and Ranger, N. *Financing Nature-Based Solutions for Adaptation at Scale: Learning from Specialised Investment Managers and Nature Funds*. Global Center on Adaptation and Environmental Change Institute, University of Oxford, (2023), p.5.
[42] Van Raalte, D. and Ranger, N. *Financing Nature-Based Solutions for Adaptation at Scale*, p.16.
[43] For example, the insurance company Kita, insures carbon credits against the risk of natural disaster, fraud and negligence and changing carbon standards. See their website for further details: https://www.kita.earth/.
[44] EIB, *Investing in Nature-based Solutions*, p.53.
[45] Green Finance Institute, *NFM Research Fund – Unlocking Investment from the Insurance Sector into Natural Flood Management*, (London: Green Finance Institute, 2024), p. 5, accessed 7 August 2024, https://legacy.greenfinanceinstitute.com/wp-content/uploads/2024/07/GFI-NFM-RESEARCH-FUND.pdf.

each employee's pension pot increases over time. Pension funds are suited to investing in assets or projects with long-term investment horizons (such as NbS projects). However, pension funds are highly risk averse with a tight focus on protecting employees' pensions and ensuring growth. For this reason, the risk profile of NbS projects does not yet match appetite of pension funds. Indeed, a 2023 report by Pensions for Purpose highlighted that at least 62% of UK pension funds do not invest in NbS.[46]

Institutional asset management

Asset management companies exist to invest the capital of asset owners into assets (whether physical assets like buildings, or non-physical assets like shares in a company and bond markets.[47]) Asset owners include entities such as insurance companies or pension funds, but also charities and individual savers. The investment strategies of asset managers depend on the goals of the asset owners. For example: growing capital to pay the retirement of pension fund beneficiaries, or the damage liabilities of insurance companies. Asset managers offer different types of products across asset types, and asset owners typically work with several management companies simultaneously, to diversify their risk and return opportunities from these different asset classes.

One way asset management companies might get involved with NbS is by providing market-rate loans to projects.[48] As we shall see, the lack of investable projects is a barrier for asset management companies who may wish to be further involved in financing NbS.[49]

Venture Capital & Private Equity

Venture capital and private equity are approaches to asset management where investors acquire shares in companies outside of public markets. Venture capital specializes in risky investment in startup or growing companies. Private equity typically focuses on more established companies. There is a large variety of venture capital firms, each often having a particular specialisation. For example, some might invest solely in climate tech start-ups. To date, venture capital firms have not been involved with investing directly in NbS.[50] Current NbS projects which focus on the marketisation of ecosystem services do not currently offer high enough returns to attract investment from venture capital firms.[51]

Banks

At their most basic, banks are financial institutions which accept deposits from the public and produce a return on those deposits by lending out their capital with interest. Their potential to transform the landscape for financing NbS cannot be overestimated. At end of

[46] Pensions for Purpose, 'Pension Funds Slow to Invest in Biodiversity Despite Massive Opportunities to Support Nature Restoration', *Press Release*, 6 June 2023, accessed 15 July 2024, https://www.pensionsforpurpose.com/knowledge-centre/press/2023/06/06/Pension-funds-slow-to-invest-in-biodiversity-despite-massive-opportunities-to-support-nature-restoration-press-release-Pensions-for-Purpose/.

[47] EIB, *Investing in Nature-based Solutions*, p.52.
[48] EIB, *Investing in Nature-based Solutions*, p.52.
[49] EIB, *Investing in Nature-based Solutions*, p.52.
[50] EIB, *Investing in Nature-based Solutions*, p.54.
[51] EIB, *Investing in Nature-based Solutions*, p.54.

2022, the International Monetary Fund estimated that the 29 most systemically important global banks held $66 trillion in total assets, representing 63% of estimated global GDP in 2022.[52] From conversations that North Star Transition has had with representatives from leading banks, we know there is strong curiosity about investing in NbS. However, they are in the exploratory phase regarding their involvement in NbS.[53]

There are many reasons why investment from banks has been slow. We will explore the main barriers to investment in the next chapter, but the crux of the issue is that current NbS projects do not satisfy the investment criteria of banks, in terms of scope, size, risk and return expectations. Banks are also not comfortable with projects with unproven or uncertain revenue streams.

3.3 The Corporate Angle

Utilities and Water Companies

Utilities, including water utilities, hold a unique position in the NbS landscape. They are highly regulated, with Ofwat overseeing not only consumer protection and industry standards but also ensuring sustainable development.[54]

Other regulatory bodies, like the Environment Agency in England and Natural Resources Wales, contribute to oversight with specific mandates, such as environmental regulation and sustainable resource use.

Water companies operate under five-year regulatory cycles known as Asset Management Periods (AMPs), such as AMP 2025-2030. Regulators set mandates for total expenditure, financial performance, outcome delivery, customer satisfaction, and environmental protections during these periods. In addition, utilities may engage in voluntary environmental initiatives, like setting Net Zero targets. However, the sector often faces criticism, including from regulators, for failing to meet formal commitments.[55]

In AMP planning, regulators require investments in environmental protections. The upcoming AMP (2025-2030) mandates water utilities to allocate £2 billion to nature-based solutions as part of a broader £20 billion environmental investment package.[56] The specifics of how utilities will participate—whether as buyers, investors, or promoters—remain unclear.

Beyond regulation, water utilities also provide an intriguing investment channel for NbS. They raise capital in financial markets through equity or debt issuance. If some of these funds are directed toward nature-based solutions, they effectively act as investment vehicles

[52] International Monetary Fund, *Global Systemically Important Banks Monitor*, (Washington, D.C.: IMF, 2022), p. 1, accessed 12 July 2024, https://www.imfconnect.org/content/dam/imf/News%20and%20Generic%20Content/GMM/Special%20Features/3Q22%20GSIB%20Monitor.pdf.
[53] EIB, *Investing in Nature-based Solutions*, p.52.
[54] Ofwat, 'Ofwat Industry Overview', accessed 7 August 2024, https://www.ofwat.gov.uk/regulated-companies/ofwat-industry-overview/.
[55] Utility Week, 'Water Companies Significantly Behind on AMP7 Delivery', accessed 7 August 2024, https://utilityweek.co.uk/water-companies-significantly-behind-on-amp7-delivery/.
[56] Ofwat, '2024 Price Review: Draft Determinations', accessed 7 August 2024, https://www.ofwat.gov.uk/regulated-companies/price-review/2024-price-review/draft-determinations/.

for NbS, either through sustainability-linked bonds or general-purpose investment, given their regulatory commitment to environmental initiatives.

General Corporates

Whilst we have stressed above that payments for ecosystem services offer limited scope for mainstream investment, corporates nevertheless play a key role as buyers of such services. As will be further explored below, the existing NbS investment models which are most innovative generally rely on corporates as buyers of ecosystem services. Corporates are primarily interested in NbS for reasons of supply chain resilience, flood risk management and other services. Companies who are interested in these types of services range from food conglomerates who are seeking to maintain a stable supply of the products to companies who have sites which are exposed to flooding risk.

Our research has shown that corporates can assess the value of NbS in several ways. For example, corporates may assess that it is more financially viable for them to pay for NbS now in order to mitigate flood risk rather than risk paying far greater amounts for the usual flood defences or damages ensuing from flooding. Another example is that corporates may calculate the monetary benefit that they will obtain from restored ecosystems through NbS (e.g. restored fish stocks in oceans) and decide to pay a fraction of this value to enable the relevant NbS project.

However the value of NbS is calculated, the corporate will have to consider whether the financing of NbS can be justified to be in the interests of the company. One of the factors which will play into this consideration is how NbS is categorised from an accounting perspective. In very broad terms, NbS can either be categorised as an operating expenditure (OpEx) or a capital expenditure (CapEx). OpEx entails the costs associated with running a business, for example paying rent on company premises. CapEx is the money invested in capital assets, for example buying company premises. Spending £10 million as CapEx as opposed to OpEx is very different from a business value perspective. £10 million on OpEx is essentially money spent, money leaving the company. However, money spent on CapEx is treated as an investment and is retained on the company balance sheet in the form of the asset bought (though the asset will usually depreciate over time).

The issue which has been highlighted is that NbS is considered to be OpEx rather than CapEx: an expenditure rather than an investment. This makes it more difficult for corporates to justify spending money on NbS (or for investors to invest, for that matter). A more detailed discussion of this issue will be provided in the next chapter.

4. Existing NbS investment models: pushing the boundaries

So far, we have outlined the current approach to financing NbS, namely payments for ecosystem services, and the current approach to investment more generally, namely debt and equity. However, to access finance which could mainstream the implementation of NbS at a faster rate and at a larger scale, it is necessary to attract more traditional forms of investment in addition to payments for ecosystem services.

To demonstrate the current landscape for financing NbS and to illustrate where we need to move to mainstream NbS, we propose to categorise current structures into different levels of complexity, as shown in Table 1 below:

Level	Description	Example	Types of finance	Example organisations	Indicative funding available
1	Small-scale nature-based solutions involving single actor and single solution	A farmer maintaining hedgerow	Subsidies Charities / Foundations Monetization of environmental outcomes (e.g. carbon credits)	DEFRA EA Natural England WWF Wildlife Trust Unilever	£100,000-£500,000
2	Collaborative work focused on a single outcome	Work to restore connected habitats to enhance nature recovery	Subsidies Charities / Foundations Monetization of environmental outcomes (e.g. carbon credits)	DEFRA EA Natural England WWF Wildlife Trust Unilever United Utilities	£500,000-£20 million
3	Collaborative work in a landscape involving multiple stakeholders and projects in ways that create several benefits through NbS	Projects across a catchment area to enable better climate adaptation through several nature-based solutions	All the above and: National Infrastructure Banks Government funding	DEFRA EA Natural England Wildlife Trust United Utilities UK Infrastructure Bank	>£20 million
4	Projects which transform landscapes by tackling root causes of issues	The transition of the farm economic model to diversify incomes to include e.g. energy (Still inclusive of NbS where useful)	All the above and: National Infrastructure Banks Government funding Institutional Investors	DEFRA EA Natural England Wildlife Trust United Utilities UK Infrastructure Bank Triodos Bank UBS	>£200 million

We consider that the NbS markets in existence typically operate at Level 2 of Table 1, making use of grants, subsidies and revenues from payments of ecosystem services. In this section, we want to explore projects which are on the way towards Level 3 in terms of scale and complexity. This allows us to see where projects or entities are pushing outside the limits of simply NbS markets and allowing more sophisticated investment structures to emerge.

Landscape Enterprise Networks

Landscape Enterprise Networks (LENs)[57] facilitate the management and financing (primarily in the form of payments for ecosystem services) of landscapes to protect the long-term needs of business and society in those landscapes.[58] For example, the needs of business and society in this case can include mitigating flood risk, resilient crop production, management of biodiversity or soil health. LENs establish regional trading systems around value chains which drive specific outcomes for different businesses or parts of society.[59]

Practically, this means that businesses operating in a landscape, coordinate contracts with farmers or landowners to fund regenerative activities which enable priority landscape objectives.[60] LENs is still being developed and so the overarching organisational infrastructure is still in flux.[61] Six UK LENs partnerships are active in the UK and Europe as of July 2024.[62]

LENs was first implemented in Cumbria, where an initial trade took place between United Utilities and a land holder along Cathwaite Beck, Cumbria.[63] Nature-based solutions for soil and nutrient management were contracted, amounting to a total value of £700,000. A more complex LENs structure was established in Poland in 2023. Here, the primary goal is to fund NbS in areas of wheat cultivation, spanning 2,407 hectares.[64] The project includes the substitution of organic fertilisers in lieu of synthetic organic ones, the implementation of soil activators, and the inclusion of grain legumes in arable rotations.[65]

The Wyre Natural Flood Management Project

Like LENs, the Wyre Natural Flood Management Project is place-based. This project is led by the Rivers Trust, Wyre Rivers Trust and Triodos Bank UK, who established a new special purpose vehicle (a Community Interest Company) to receive and distribute the project's

[57] LENs was co-developed in 2019 by Andrew Griffiths, then Head of Value Chain Sustainability at Nestlé UK, and Tom Curtis, a partner at 3Keel (a UK-based sustainability consultancy).
[58] 3Keel, *Landscape Enterprise Networks: Explainer*, (June 2019), p. 1.
[59] 3Keel, *Landscape Enterprise Networks: Explainer*, (June 2019), p. 1
[60] Hecht, David, *Blueprint for Landscape Enterprise Networks (LENs)*, (Washington, DC: EcoAgriculture Partners, on behalf of 1000 Landscapes for 1 Billion People, 2022), p. 1.
[61] Landscape Enterprise Networks, 'How LENs Works', accessed 3 July 2024, https://landscapeenterprisenetworks.com/how-lens-works/.
[62] These are in Cumbria, Yorkshire, East Anglia, Poland, Hungary and Italy.
[63] Landscape Enterprise Networks, 'Cumbria', accessed 3 July 2024, https://landscapeenterprisenetworks.com/cumbria/.
[64] Landscape Enterprise Networks, 'Poland', accessed 3 July 2024, https://landscapeenterprisenetworks.com/poland-english/.
[65] Landscape Enterprise Networks, 'Poland'.

finance flows. The project is intended to deliver 1,000 natural flood management measures across 70 hectares.

The financing of the project is blended (involving a mixture of private and charitable funds).[66] The private investment is in the form of a £850,000 loan from high-net worth individuals and impact investment funds. The Woodland Trust also provided £627,500 in the form of grants.

The project's revenue streams are payments for ecosystem services to buyers which include Flood Re, United Utilities, the Environment Agency, Wyre Council and the Northwest Regional Flood and Coastal Committee. £2 million in ecosystem service payments are scheduled in total over the nine-year lifetime of the project.[67]

Note that the project obtained Social Investment Tax Relief – a scheme whereby individual investors investing in the project received tax relief – with a guarantee from HMRC. This was the first environmental scheme approved for such tax relief.[68]

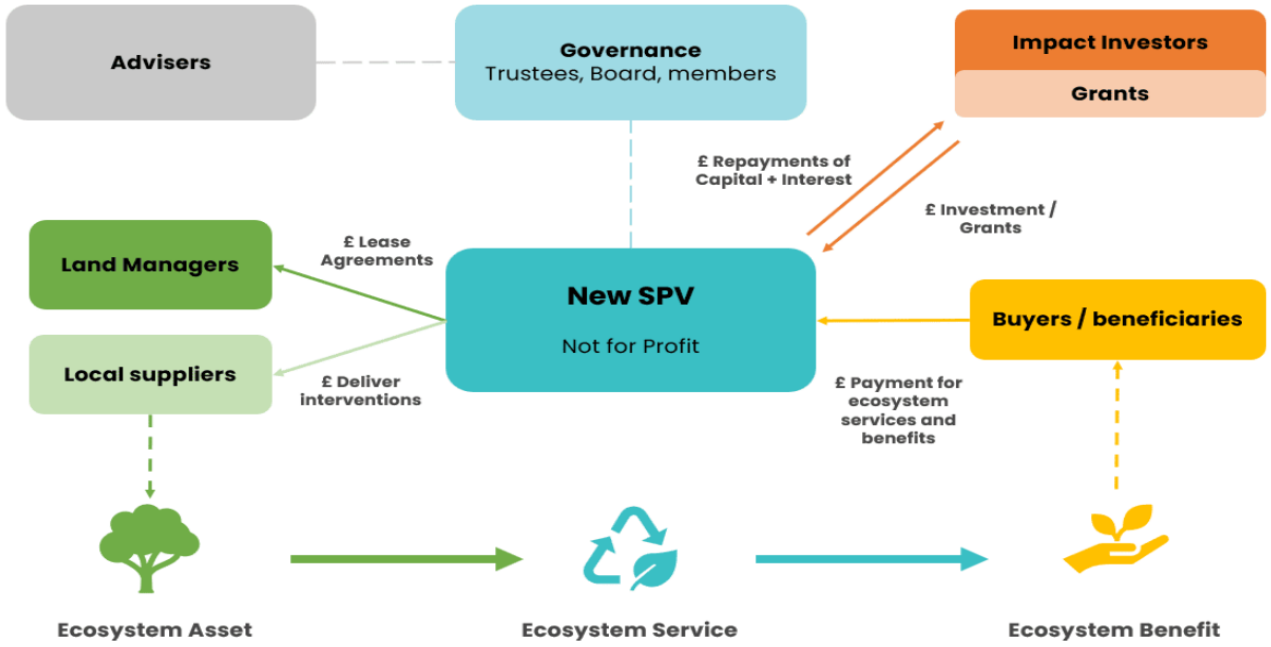

Figure 3: Figure 3: Structure of The Wyre Catchment Natural Flood Management Project (Source: reproduced from Green Finance Institute, 'The Wyre Catchment Natural Flood Management Project')

The &Green Fund

The &Green Fund[69] was established by Norway's International Climate and Forest Initiative (NICFI) and is an example of how investment funds can use integrated investment models to promote NbS within landscapes. &Green's aim is to finance sectors and regions to

[66] Eunomia, *Governance of Blended Finance*, p.96.
[67] Green Finance Institute, 'The Wyre Catchment Natural Flood Management Project', accessed 15 July 2024, https://www.greenfinanceinstitute.com/casestudies/the-wyre-catchment-natural-flood-management-project/.
[68] Eunomia, *Governance of Blended Finance*, p.97.
[69] &Green Fund, accessed 15 July 2024, https://www.andgreen.fund/.

transition to sustainable agricultural practices, and to protect landscapes from deforestation.[70] As part of &Green's approach to investment, all its investees must agree to a Landscape Protection Plan. This Plan covers such matters as targets for environmental and social returns with milestones for delivery, as well as a monitoring, reporting, and verifying strategy and schedule.[71] An example of a typical &Green's investment is its loan to a farm in Brazil which sought to integrate its soy and cattle farming, and to recuperate degraded pastures and protecting forests. For this investment, &Green is providing a loan of USD 10 million for a term of 8 years. A local bank is also providing a loan of BRL 150 million (equivalent to roughly USD 30 million).

&Green has raised funds from a variety of sources both private and public including the UK Government, Unilever and the Global Environment Facility.[72] Note that while both private and public money has been raised by &Green, these are not on commercial terms with the interest rate or return expectation that commercial investors would typically require. For example, the money raised from Unilever is in the form of a redeemable grant.[73] Figure 4 shows &Green's committed capital by investor and financial instrument.

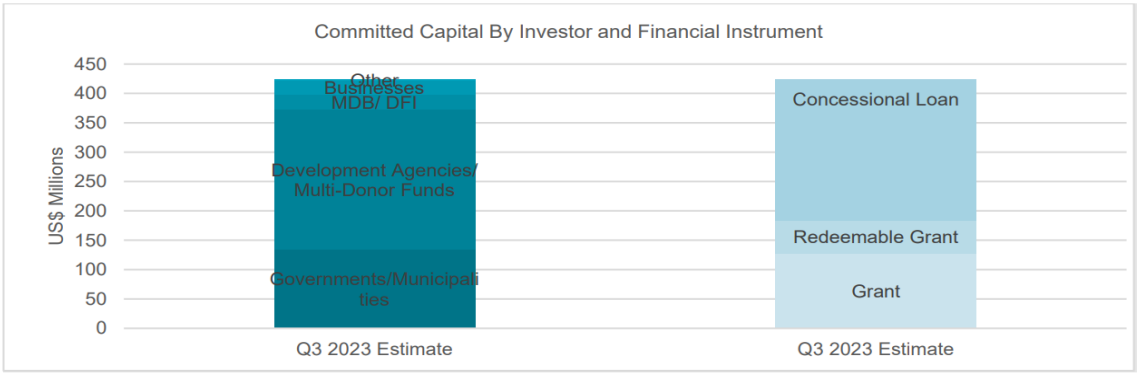

Figure 4: Figure 4: Capital of &Green (Source: reproduced from Van Raalte, D. and Ranger, N. Financing Nature-Based Solutions for Adaptation at Scale, p.26.)

The finance provided by the NICFI acts as first loss capital.[74] This means that any losses made by the fund will first be borne by NICFI. This has allowed &Green to raise investment from other sources due to the investment's overall lowered risk profile. NICFI's investment has also enabled the establishment of a technical assistance facility which gives advice to &Green's investees to enable the realisation of its objectives.[75]

Natural Asset Companies

[70] &Green Fund, 'How We Invest: Landscape Protection Plan', accessed 15 July 2024, https://www.andgreen.fund/how-we-invest/#landscape-protection-plan.
[71] &Green Fund, 'How We Invest: Landscape Protection Plan', accessed 15 July 2024, https://www.andgreen.fund/how-we-invest/#landscape-protection-plan.
[72] Van Raalte, D. and Ranger, N. *Financing Nature-Based Solutions for Adaptation at Scale*, p.25.
[73] Van Raalte, D. and Ranger, N. *Financing Nature-Based Solutions for Adaptation at Scale*, p.52
[74] Van Raalte, D. and Ranger, N. *Financing Nature-Based Solutions for Adaptation at Scale*, p.25
[75] Van Raalte, D. and Ranger, N. *Financing Nature-Based Solutions for Adaptation at Scale*, p.52

Natural Asset Companies (NAC) are a concept developed and promoted by the Intrinsic Exchange Group. It is still largely a developing concept. NACs aim to create publicly traded companies that hold natural resources and ecosystems, allowing investors to invest in the preservation and enhancement of natural assets. The issuers would be any of governments, private landowners, farmers, or corporations seeking to improve the sustainability of their supply chain

The idea is to monetize natural assets, for example through payment for ecosystem services. In the US, the New York Stock Exchange envisioned listing the first such NAC, but relented in early 2024 under political pressure, with conservative politicians seeing them as "anti-growth".[76]

4.1 What to Expect Next

Thus far in this document we have produced an outline of the current landscape of financing for NbS, without providing an in-depth analysis of what is and is not working. In the next chapter, we will examine how the current situation serves (or does not serve) the implementation and mainstreaming of NbS. The following "barriers to investment" will be examined in the next chapter:

- Issues with the payments for small-scale, high-cost and low-return ecosystem services.
- Perceived risk of investment in NbS as compared with other investment options.
- Uncertainty around who owns ecosystem services.
- Grey vs Green infrastructure and the uncertainty of NbS to provide traditional outcomes.
- Long timeframes for financial returns on NbS.
- NbS problems pertaining to replication and efficiency.
- The lack of policy and regulation which supports investment in NbS and the risk of greenwashing, or fraud.
- The skills gap among stakeholders.

To mainstream NbS and to take NbS projects from Levels 1 and 2 up to the kind of systemic change entailed by Level 4, we need to understand and address at least some of these barriers to investment.

4.2 Glossary of Finance Terms

[To be updated as work continues]

Blended finance	Bringing together different types of capital from (potentially) a range of private, state and philanthropic sources. Such a model can make it easier to introduce private funding sources to community-based actions.

[76] Newsweek, 'New York Stock Exchange Drops Idea of Investing in Nature Amid GOP Backlash', accessed 8 August 2024, https://www.newsweek.com/new-york-stock-exchange-drops-idea-investing-nature-amid-gop-backlash-1862024.

Bond	A debt instrument representing a loan made by investors to a borrower, typically a corporate or government. It functions like an "IOU," where the bondholder (i.e. an investor) is owed repayment of the principal amount plus interest over a specified period. When an entity raises finance through a bond, it is said to "issue" a bond.
Capital Expenditure	Capital Expenditure or CapEx is the investment a company makes in assets it holds for a long period of time, for example any property needed for the business.
Carbon credit	A tradeable financial product that monetises 1 tonne of CO_2 equivalent (tCO_2e).
Community Interest Company (CIC)	A type of social enterprise in the UK designed to benefit the community rather than private shareholders. A CIC is regulated to ensure that its activities provide a positive impact on the community, and it must demonstrate its commitment to social objectives. Profits generated by a CIC are reinvested into the company or used for community benefit, with restrictions on profit distribution to shareholders.
Concessional capital	A type of financing which offers more favourable terms to the borrower than the market would offer (e.g. lower interest rates or longer repayment periods). Concessional capital is usually provided by financial institutions such as development banks, to enable projects responding to major global challenges.
Debt	At its core, debt is an obligation to repay something that is owed. In finance, debt refers to a sum of money borrowed by an individual or entity (the borrower) from one or more lenders, with the agreement to repay the principal amount over a defined period, typically with interest.
Ecosystem services	Ecosystems provide a variety of benefits, including provisioning, regulating, cultural and supporting services. Many environmental actions are planned to be funded by monetising ecosystem services.
Equity	Ownership in a company, represented by shares. Holding equity gives an individual a stake in the company's assets and profits, often entitling them to a portion of the earnings and, in some cases, voting rights on key business decisions.
First-loss capital	A type of concessional capital in which an investor, often a development bank or government entity, agrees to absorb the initial losses of a project. This strategy helps to reduce risk for other investors, encouraging additional investment by providing a financial safety net in case of project underperformance.
Guarantee	A promise made by the guarantor (i.e. a person or entity) to perform the obligations of another party if that party fails to perform such obligations. A financial guarantee is a promise made by the guarantor to repay the principal sum and interest of a loan or bond if the borrower fails to meet their payment obligations.

Impact investing	A form of investing that aims to generate positive, measurable social or environmental impact alongside financial returns.
Investment	The provision of capital for an expected return, including the repayment of capital. This needs to be differentiated from non-repayable capital, such as that provided by grant or philanthropic sources. It is also distinct from payments made for the purchase of services, such as payments for ecosystem services.
Market-rate	The price for a product or service on the free market. A market-rate loan has terms which are determined by the open market and are based e.g. on the borrower's credit worthiness, the risk of the transaction, and the prevailing economic conditions.
Nature-based solutions	"Actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits".[77]
Operational Expenditure	Operational expenditure or OpEx is the costs a company incurs through running its day-to-day operations, for example paying rent.
Operating company	An entity within a larger corporate group responsible for managing the day-to-day business activities, such as production, sales, payroll, and project management. It typically functions as a subsidiary owned by a holding company, which oversees financial and strategic management but does not engage in daily operations.
Redeemable grant	A form of grant which may become repayable after a certain period or if certain conditions or objectives are not met. Unlike traditional grants, redeemable grants are often designed to incentivize performance and ensure that the funds are used effectively for intended purposes.
Social Investment Tax Relief	A UK tax incentive designed to encourage individual investors to invest in social enterprises through equity or qualifying debt instruments. Investors can benefit from a range of tax reliefs, including income tax relief, capital gains tax exemption, and loss relief, aimed at promoting investment in organizations that deliver social benefits while providing financial returns.
Social return	A method of measuring the impact of an investment that captures benefits not typically reflected in financial statements, including social, environmental, and community factors. Social return evaluates how investments contribute to positive societal outcomes, such as improved quality of life, environmental sustainability, and community well-being, alongside traditional financial returns.

[77] Definition as agreed by the United Nations General Assembly countries in 2022. Reproduced from: EIB, Investing in Nature-based Solutions, p.2.

Special purpose vehicle (SPV)	A legal entity created for a specific business purpose. An SPV has its own legal identity and is usually used to separate assets and liabilities related to a particular project or activity.
Supply Chains	A system that manages the flow of goods, services, and information from suppliers to consumers. It encompasses all activities involved in the procurement of raw materials, production processes, logistics, and distribution. The supply chain is primarily concerned with optimizing the efficiency and effectiveness of these processes to ensure timely delivery, cost management, and customer satisfaction. See also "Value Chains".
Transaction costs	The costs incurred when buying/selling a good or a service. A related issue to consider is due diligence costs, which relate to verifying or validating the appropriateness of the claims made regarding the investment's returns, risks and governance.
Value Chains	The activities within a business which add value to the final product or service of the business (e.g. product development, marketing, customer service). Each stage of the value chain adds value to the final product, and understanding this chain helps businesses identify opportunities for efficiency improvements, cost reductions, and competitive advantage. See also "Supply Chains".

4.3 Abbreviations

NbS	Nature-based solutions
BNG	Biodiversity Net Gain
NICFI	Norway's International Climate and Forest Initiative
NMS	Nutrient Mitigation Scheme
UK ETS	UK Emissions Trading Scheme
VCM	Voluntary Carbon Markets
LENs	Landscape Enterprise Networks
BSC	Better Society Capital
GMEF	Greater Manchester Environmental Fund
CIC	Community Interest Company

4.4 Bibliography

[To be updated as work continues]

3Keel, *Landscape Enterprise Networks: Explainer*, June 2019.

Better Society Capital, 'Our Impact', *Impact Report 2023*, accessed 10 July 2024, https://bettersocietycapital.com/impact-report-2023/our-impact/.

Climate Change Committee, *Voluntary Carbon Markets and Offsetting*, October 2022, accessed 3 July 2024, https://www.theccc.org.uk/wp-content/uploads/2022/10/Voluntary-carbon-markets-and-offsetting-Final.pdf.

Earthly, accessed 10 July 2024, https://earthly.org/.

European Commission, 'European Green Bond Standard: Supporting the Transition', accessed 7 August 2024, https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/european-green-bond-standard-supporting-transition_en.

European Investment Bank, *Investing in Nature-based Solutions*, Luxembourg: EIB, 2023, accessed 10 July 2024, https://www.eib.org/attachments/lucalli/20230095_investing_in_nature_based_solutions_en.pdf.

Eunomia, *Governance of Blended Finance: Governance Structures and Corporate Entities for Partnerships*, Bristol: Eunomia, December 2022, accessed 4 July 2024, https://hive.greenfinanceinstitute.com/wp-content/uploads/2023/02/Gove&greenrnance-of-Blended-Finance.pdf.

Finance Earth, *A Market Review of Nature-Based Solutions: An Emerging Institutional Asset Class*, London: Finance Earth, 2021, accessed 9 July 2024, https://finance.earth/wp-content/uploads/2021/05/Finance-Earth-GPC-Market-Review-of-NbS-Report-May-2021.pdf.

Finance Earth and Economics for the Environment Consultancy, *Facilitating Local Natural Capital Investment: Literature Review, NatureScot Research Report No. 1260*, 2021.

Fitch Ratings, 'Rating Definitions', accessed 5 July 2024, https://www.fitchratings.com/products/rating-definitions.

GM Environment Fund, 'Scaling Natural Capital Investment Project', accessed 5 July 2024, https://gmenvfund.org/projects/scaling-natural-capital-investment-project.

Green Finance Institute, *NFM Research Fund – Unlocking Investment from the Insurance Sector into Natural Flood Management*, London: Green Finance Institute, 2024, accessed 7 August 2024, https://legacy.greenfinanceinstitute.com/wp-content/uploads/2024/07/GFI-NFM-RESEARCH-FUND.pdf.

Green Finance Institute, 'The Wyre Catchment Natural Flood Management Project', accessed 15 July 2024, https://www.greenfinanceinstitute.com/casestudies/the-wyre-catchment-natural-flood-management-project/.

Green Finance Institute, 'Wendling Beck Exemplar Project', *GFI Hive Toolkit*, accessed 3 July 2024, https://www.greenfinanceinstitute.com/gfihive/toolkit/initial-project-scoping/wendling-beck-exemplar-project/.

Hecht, David, *Blueprint for Landscape Enterprise Networks (LENs)*, Washington, DC: EcoAgriculture Partners, on behalf of 1000 Landscapes for 1 Billion People, 2022.

International Monetary Fund, *Global Systemically Important Banks Monitor*, Washington, D.C.: IMF, 2022, accessed 12 July 2024, https://www.imfconnect.org/content/dam/imf/News%20and%20Generic%20Content/GMM/Special%20Features/3Q22%20GSIB%20Monitor.pdf.

Landscape Enterprise Networks, 'Cumbria', accessed 3 July 2024, https://landscapeenterprisenetworks.com/cumbria/.

Landscape Enterprise Networks, 'How LENs Works', accessed 3 July 2024, https://landscapeenterprisenetworks.com/how-lens-works/.

Landscape Enterprise Networks, 'Poland', accessed 3 July 2024, https://landscapeenterprisenetworks.com/poland-english/.

Natural England, *Nutrient Neutrality and Nutrient Mitigation: A Summary Guide and Frequently Asked Questions*, June 2022, accessed 3 July 2024, https://publications.naturalengland.org.uk/publication/6248597523005440.

Natural England, 'Natural England's Nutrient Mitigation Scheme Devised to Protect Our Waterways from Pollution and Enable Home Building Has Now Launched', *Natural England Blog*, 31 March 2023, accessed 3 July 2024, https://naturalengland.blog.gov.uk/2023/03/31/natural-englands-nutrient-mitigation-scheme-devised-to-protect-our-waterways-from-pollution-and-enable-home-building-has-now-launched/.

Newsweek, 'New York Stock Exchange Drops Idea of Investing in Nature Amid GOP Backlash', accessed 8 August 2024, https://www.newsweek.com/new-york-stock-exchange-drops-idea-investing-nature-amid-gop-backlash-1862024.

Ofwat, '2024 Price Review: Draft Determinations', accessed 7 August 2024, https://www.ofwat.gov.uk/regulated-companies/price-review/2024-price-review/draft-determinations/.

Ofwat, 'Ofwat Industry Overview', accessed 7 August 2024, https://www.ofwat.gov.uk/regulated-companies/ofwat-industry-overview/.

One Planet Capital, accessed 10 July 2024, https://www.oneplanet.capital/.

Pensions for Purpose, 'Pension Funds Slow to Invest in Biodiversity Despite Massive Opportunities to Support Nature Restoration', *Press Release*, 6 June 2023, accessed 15 July 2024, https://www.pensionsforpurpose.com/knowledge-centre/press/2023/06/06/Pension-funds-slow-to-invest-in-biodiversity-despite-massive-opportunities-to-support-nature-restoration-press-release-Pensions-for-Purpose/.

The Nature Conservancy, *Biodiversity Net Gain in England: Developing Effective Market Mechanisms, Discussion Paper*, October 2021, accessed 3 July 2024, https://www.nature.org/content/dam/tnc/nature/en/documents/TNC_BiodiversityNetGain_England.pdf.

United Nations Environment Programme (UNEP), *State of Finance for Nature 2023*, Nairobi: UNEP, 2023, accessed 9 July 2024, https://www.unep.org/resources/state-finance-nature-2023.

Utility Week, 'Water Companies Significantly Behind on AMP7 Delivery', accessed 7 August 2024, https://utilityweek.co.uk/water-companies-significantly-behind-on-amp7-delivery/.

Van Raalte, D. and Ranger, N., *Financing Nature-Based Solutions for Adaptation at Scale: Learning from Specialised Investment Managers and Nature Funds*, Global Center on Adaptation and Environmental Change Institute, University of Oxford, 2023.

&Green Fund, accessed 15 July 2024, https://www.andgreen.fund/.

&Green Fund, 'How We Invest: Landscape Protection Plan', accessed 15 July 2024, https://www.andgreen.fund/how-we-invest/#landscape-protection-plan.