

A Market Review of Nature-Based Solutions

An emerging institutional asset class



Foreword by the Trustees of The Green Purposes Company

We face an environmental crisis. Carbon emissions are changing our climate causing forests to burn, corals to die, ice caps to melt and crops to fail. We are polluting the air we breathe and plastics have entered our food chain. Alarming, global wildlife populations have plummeted by over two thirds since 1970.

In short, we are living beyond the environmental limits of our planet. We should be living off nature's interest – ecosystem services such as carbon sequestration, disease control, food and water provision – yet we're dipping into her capital – rapidly depleting the stock of natural assets upon which we depend through deforestation, over-fishing, soil erosion, pollution and the like.

While there is promising progress to tackle the worst impacts of climate change, with most major economies now investing heavily to wean themselves off fossil fuels, investment in nature is desperately lacking.

Investing in nature has been around for decades. But this has been characterised by sub-landscape level projects undertaken by environmental charities and philanthropic institutions at not anything like the scale necessary to reverse today's environmental decline. It is seen as niche, an immature market and without the financial returns necessary to attract mainstream investors. This needs to change.

This important report maps investments in nature taking place around the world. It provides insights on the state of this evolving market and the key barriers to uptake. We think it has identified a representative sample of the wider market and provides a valid description of current trends and the distribution of effort. Encouragingly, it highlights that change is afoot identifying exemplar projects which are achieving net gains for nature as well as commercial returns, with some serious players entering the market.

The report goes on to make recommendations for policy makers and institutional investors. These are aimed at achieving market scale, and include:

- **Engaging with the nature-based solutions market to deliver investment** – investors, developers and others must work together to bring forward a credible pipeline of investable and scalable projects.
- **Developing market governance** – there must be robust definitions, metrics, standards and verification to improve market confidence and prevent greenwashing.
- **Public sector leadership** – governments, businesses and institutions must step up to ensure a policy and fiscal landscape that rewards investment in nature, now and for the long term.

We think nature is the next global financial asset class. While still a frontier area, within the next decade it will become mainstream. We encourage market actors, in particular institutional investors and asset managers, to engage with this hugely important and exciting agenda.

James Curran
Robin Teverson

Trevor Hutchings
Peter Young

Tushita Ranchan

The Trustees

Green Purposes Company Limited

Who is this report for?

Commissioned by the Green Purposes Company, Finance Earth, a specialist environmental impact investment adviser and fund manager, conducted a global review of investments into nature-based solutions ('NbS').

This report refers to the **International Union for Conservation of Nature ('IUCN')** definition, one of the most globally recognised, which defines NbS as actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

This report has been produced for an audience of the following groups and individuals:

- **Institutional investors** seeking to understand the international market for NbS, the emerging opportunities for investing within this asset class, as well as recommendations for supporting market development; and
- **Policymakers** seeking to understand the current status of the international NbS market, and opportunities for implementing policy to accelerate market growth.

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Executive Summary

Introduction

Commissioned by Green Purposes Company, Finance Earth undertook a global review of investments into nature-based solutions ('NbS') to:

- Map completed investments into NbS to determine market trends;
- Analyse common NbS business models and investment structures to identify existing and emerging opportunities for investors; and
- Determine key barriers to investment and recommendations for institutional investors and policymakers in the UK and Europe to support the acceleration and scaling of investment into NbS.

Finance Earth conducted a literature review and desktop research to identify global examples of repayable investment into NbS. Over 200 unique NbS transactions were identified during the initial review stage; this list was then filtered to 88 transactions that meet the following criteria for detailed analysis:

What is included in this analysis?	What isn't included in this analysis?
Examples of NbS projects that meet the definition of NbS as defined by the IUCN.	Examples of NbS projects that do not meet the definition of NbS as defined by the IUCN.
NbS transactions where repayable investment, provided by financial institutions or corporate investors, was used to meet some or all of the project funding need.	NbS transactions where exclusively non-repayable funding was used to meet the project funding need.
Publicly available, verifiable data	Private, proprietary or unverifiable data.

Figure 1 Overview of the data used for analysis presented in this report

The criteria for analysis did not limit the dataset based on time period, and includes transactions active from 2002 to 2021. Whilst the market review attempts to capture a representative share of completed NbS investments it does not aim to be an exhaustive list of global transactions across the NbS market.

Following analysis of the dataset compiled during the initial review, Finance Earth engaged with select investors active in the market to understand key barriers and enablers to accelerating and scaling institutional investment. The results of this market mapping and analysis have been used to identify recommendations for institutional investors and policymakers to support the development of this emerging institutional asset class.

The Need for Investment in Nature-Based Solutions

Since the industrial revolution, over 75% of the world's land surface has been significantly altered by humans, two-thirds of the world's oceans have been polluted, and over 85% of wetlands have been destroyed.¹ More than one billion plant and animal species are currently threatened by extinction.²

An estimated \$845 billion of annual investment is required to safeguard the natural environment, but current annual spending is only around \$134 billion.³ This annual investment need of over \$700 billion cannot be met by public and philanthropic funding alone. As of 2019, only \$20.75 billion of private capital is estimated to have flowed into nature-positive activity and conservation investments.⁴ Existing levels of private investment must be dramatically scaled in order to meet the conservation funding gap.

NbS offer practical opportunities for creating pathways to delivering investment into nature from the global capital markets, currently estimated to be worth approximately \$200 trillion.⁵ Controlling an estimated \$87 trillion in assets, a significant proportion of the global capital markets, institutional investors have a critical role to play in bringing the NbS sector to scale.⁶

Summary of Findings

There are significant numbers of NbS projects operating on 'commercial' rather than philanthropic terms

Finance Earth identified over 200 NbS projects, from which 88 unique transactions were selected that incorporated repayable investment into the capital mix, with a total disclosed value of approximately \$1.5 billion. Although most of these transactions do not disclose financial returns, the majority were identified as offering market rate returns, with targeted performance ranging from 2-12% IRR. Almost half of all investments identified used 'blended finance' approaches, where grant capital is used to de-risk and enhance investor returns.

There are investible income models for NbS projects, with stacking of revenues increasingly being used to deliver more investment-ready transactions

Across the 88 transactions analysed, two major categories of business model emerged, based on commodity and service sales and monetisation of cost benefit.

The majority of NbS transactions identified had incomes based on commodity markets, where the most mature forms of NbS were seen across the timber, agricultural and water sectors. In contrast, cost benefit models where revenue is generated through capturing a portion of operational or capital cost savings to beneficiaries, were identified in many fewer (24%) of transactions.

A significant proportion of transactions (43%) stacked multiple commodity or service incomes, where several revenue streams are aggregated to deliver an investment return. Some transactions (15%) stacked income from across both sales and cost benefit models, illustrating the importance of stacking income for NbS in generating commercial returns. Sale of carbon credits through voluntary carbon markets was the most common ecosystem service, identified across 34% of transactions. An increasing number of carbon-linked investment models have come to market within the last four years, as well as recent transactions that generate a large part of their income through carbon sales, highlighting the increasing prominence and alignment of NbS in delivering climate mitigation strategies.

As an early-stage market, there remains complexity to work through and barriers to unlock to achieve scale

There is a growing number of completed transactions across a range of NbS themes that appear to deliver high-quality, measurable impact. However, market analysis has demonstrated the high level of ambiguity within the market around the definition of NbS: projects often land on a spectrum of impact where additionality, attribution, permanence and unintended consequences are difficult to quantify and independently validate.

% of NbS transactions disclosing terms



Figure 2 Analysis of NbS expected returns - share of transactions identified disclosing return expectations

% of NbS transactions applying business model

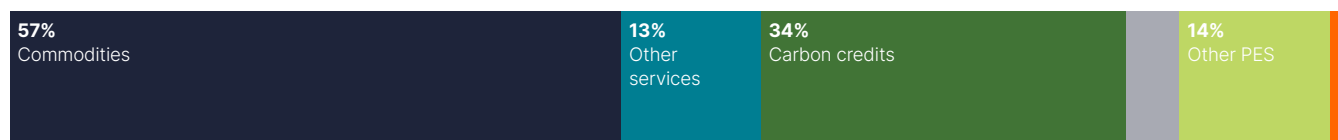


Figure 3 Analysis of NbS business models – representative share of sales models; more than 100% due to multiple revenues being stacked within project structures

Typical NbS transaction sizes are small in scale (\$30m mean average and \$9.3m median transaction size, based on the identified dataset) leading to an increasing number of funds and aggregators that are helping to create pathways for institutional investment into NbS. There are, however, challenges to developing sufficient volume of high-quality, aligned NbS deals to enable aggregation, with many project developers needing significantly scaled resources to be able to deliver the volume of pipeline required by investors.

Several NbS sub-sectors exist, with each theme at a different stage of commercial development. The most developed sectors are closely linked to major commodity markets, which tend to be larger-scale and attract greater volumes of investment. It is, however, important to note that while these sectors provide scale and currently represent the most mature forms of NbS from an investment perspective, their range of impact is very broad with some examples identified having material negative impact and unintended consequences.

The potential risks of unintended consequences are exacerbated by the complexities of impact measurement and reporting frameworks, which are typically led by fund managers and developers, creating a plethora of approaches. This results in a complex and often ambiguous landscape for investors to navigate to assess relative levels of impact and quality. These issues highlight the importance and need for common, cross-cutting definitions and approaches to measuring and validating impact from NbS investment.

Given the uniqueness of the asset types and interventions required, a new breed of specialist developer and fund manager is emerging. Environmental NGOs are well-placed to become major developers within the NbS market as they possess the empirical data and practical delivery experience, as well as being motivated by impact. However, many NGOs need capacity building to be able to develop projects that meet investor requirements.

The nascent development of the NbS market results in many of the existing products being first-time funds from new, specialist investment managers, who lack the track record typically required by institutional investors. Further barriers exist where fund sizes are sub-scale, reflecting the relatively low volumes of high-quality NbS pipeline, leading to many funds being too small to meet institutional investor minimum ticket sizes and maximum concentration thresholds.

Despite the complexities and risks, the NbS market does offer an increasing array of investment opportunities, enabling investors to directly and positively impact nature and society, with clear strategic links to climate mitigation and adaptation strategies. Furthermore, many of the underlying opportunities have attractive investment characteristics providing non-correlated and often inflation-proofed return profiles through asset-backed activities.

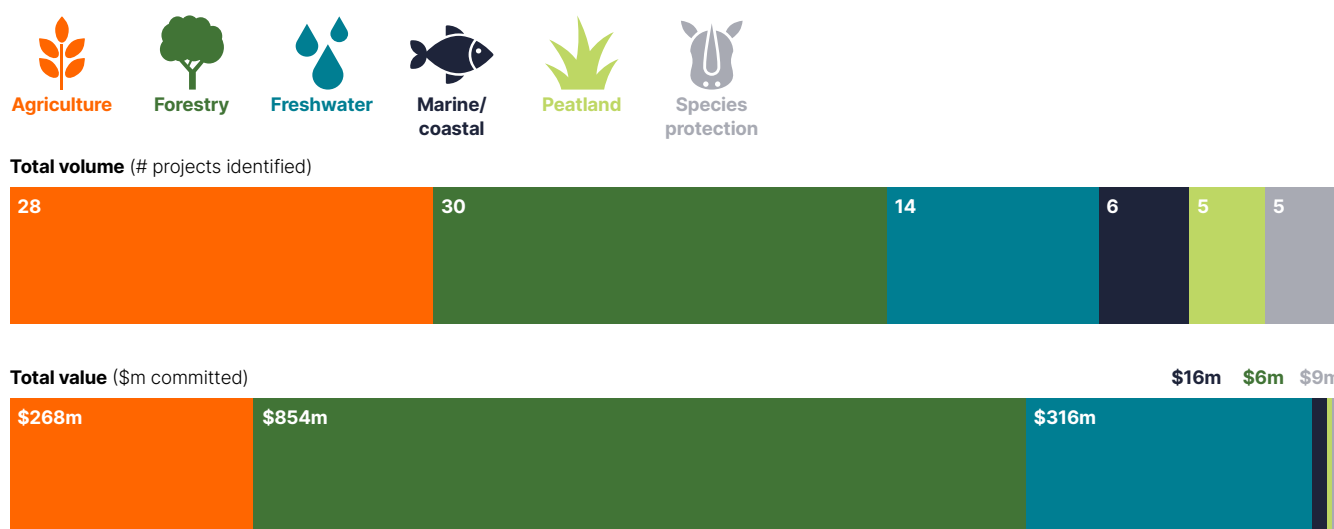


Figure 4 Analysis of global NbS investment themes – share of total number and value of investments reviewed

Recommended Actions

This report outlines key recommended actions that investors and policymakers could take to support the growth of this important market.

Engaging with the NbS market to deliver investment
Investors could consider the following actions to build working partnerships and networks with project developers and other key actors.

Action 1 Develop NbS investment strategies through engagement with market practitioners (developers and intermediaries) including environmental NGOs and the scientific community, to identify and prioritise high-quality outcomes; and build organisational awareness of the role of NbS in climate change mitigation to create links between investment and net zero strategy.

Action 2 Invest in specialist resources to develop in-house expertise and establish working relationships and networks between other NbS investors, project developers, scientific communities and policymakers. While third-party specialists will be required, investors should seek to develop in-house expertise to evaluate the nuanced and often complex array of NbS outcomes.

Action 3 Allocate budgets to implement 'pathfinder' projects, which could involve ringfencing new pools of capital for NbS, potentially through net zero budgets or determining portions of existing capital that can be allocated to NbS; for example, by allocating a portion of wider agriculture investment to regenerative agriculture. These dedicated allocations should have lower investment size thresholds to facilitate investment into maturing but sub-scale NbS asset classes.

Action 4 Develop blended finance approaches by aligning in-house assets, such as charitable activities, CSR budgets, wealth management and philanthropic advisory units. Activating these resources to tackle the key barriers within the NbS market could create catalytic change to accelerate the development of high-quality pipelines and market infrastructure.

Developing market governance

Investors could consider the following actions to unlock investment at scale by collaboratively developing governance and infrastructure to create a functioning NbS market.

Action 5 Increase NbS investment reporting and transparent data sharing, reporting on both successes and failures of early trials to support market analysis platforms and due diligence providers to create centralised, more consistent NbS market data equivalent to adjacent sectors (such as agriculture and timber). This will help to encourage new investors into the market by reducing due diligence costs, as well as supporting wider market development through shared learning.

Action 6 Actively engage and collaborate with the scientific community to co-create international market standards of quality for impact measurement. Investors should work collaboratively to agree the wide range of standards required, helping to ensure they remain proportionate and effective for the NbS market.

Public sector leadership

Policymakers could consider the following actions to unlock the potential of the NbS sector through collaboration between public, private and philanthropic partners.

Action 7 Promote policy and fiscal regimes that encourage investment by implementing floor prices for key ecosystem services markets, allocating public funds for development of investment-ready NbS projects, providing catalytic capital for blended finance vehicles, and allocating land and sea assets for development of NbS projects.

Action 8 Accelerate market development through sponsoring the creation of standards and verification codes for ecosystem services, aiming to house codes through independent and scientifically rigorous platforms.

Action 9 Establish cross-sectoral working groups by sponsoring the creation of market platforms and centres of excellence to facilitate market development, and promotion of high-quality outcomes.

Introduction to Investment in Nature-Based Solutions

Human activities have led to the widespread degradation and destruction of the natural environment on which our species depends. Since the industrial revolution, over 75% of the world's land surface has been significantly altered by humans, two-thirds of the world's oceans have been polluted, and over 85% of wetlands have been destroyed.⁷ More than one billion plant and animal species are currently threatened by extinction.⁸ Urgent action is needed to halt and reverse the degradation of nature.

Nature provides solutions to the threats posed by climate change and biodiversity loss, while delivering benefits for society. The variety of benefits that nature provides, known as 'ecosystem services', have an estimated global value of \$125-140 trillion per year – equivalent to 1.5x global GDP.⁹ Many ecosystem services lack clear markets through which their value can be appropriately monetised to deliver the environmental and social benefits they provide. However, NbS provide a rapidly evolving approach to unlocking opportunities for investing in ecosystem services.

What Are NbS?

The term NbS is relatively new, having first appeared in the early 21st century, and its definition was formally established by the International Union for Conservation of Nature ('IUCN') in 2016.

NbS are actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. IUCN, 2016

NbS cover a broad range of habitats and activities, such as mangroves and corals protecting coastlines from erosion and flooding, wetlands filtering nutrients from fresh-water supplies, and restoration of habitats to mitigate the effects of climate change and biodiversity loss. These models have received increasing recognition over the last decade as emerging opportunities to unlock investment into markets that benefit nature and society.

The Role of Investment in NbS

An estimated \$845 billion of annual investment is required to safeguard the natural environment, but current annual spending is only around \$134 billion.¹⁰ This annual investment need of over \$700 billion cannot be met by public and philanthropic funding alone. As of 2019, only \$20.75 billion of private capital is estimated to have flowed to nature-positive activity and conservation investments, although there is evidence that private markets for conservation finance are rapidly growing in some parts of the world.^{11,12} For example, the US restoration industry alone has now reached \$25 billion in annual economic output, supporting 220,000 jobs: more than the logging, coal mining, iron and steel industries combined.¹³ However, existing levels of private investment must be dramatically scaled and accelerated in order to meet the conservation finance funding gap.

Creating pathways to delivering investment into NbS for the global capital markets, currently estimated to be worth approximately \$200 trillion, is critical to filling this gap.¹⁴ Controlling an estimated \$87 trillion in assets, institutional investors have a vital role to play in bringing the NbS sector to scale.¹⁵

The NbS Market At A Glance

Compiling evidence of NbS market activity

Commissioned by Green Purposes Company, Finance Earth undertook a review of the global NbS market to source insights and future opportunities for developing the NbS investment market in the UK and Europe. Finance Earth identified over 200 NbS transactions, of which 88 unique examples met the report criteria where repayable investment has been delivered into NbS. These transactions represent a total combined value of approximately \$1.5 billion equivalent, covering investments occurring from 2002 to 2021.

The data collated for this market review were based on publicly disclosed information, and although due care was taken in validating the information, it should be noted that many of the publicly available NbS data sources are often fragmented and sometimes inconsistent across platforms. The dataset analysed for this report is not intended to be exhaustive but aims to be a representative sample of the NbS market where investment details are publicly available and verifiable.

A key challenge to reviewing the NbS market is the absence of dedicated platforms for aggregating public information on prior transactions, creating a mismatch between publicly quoted economic statistics and corresponding market data.

The dataset compiled for this report sought to illustrate key trends within the global NbS market and to reveal emerging opportunities for institutional investors in the UK and Europe. For the purposes of analysis, examples of NbS projects were included where they meet the IUCN definition of NbS, where private investment has been used to support project set-up and/or ongoing costs, and where information is publicly available. For more information on the methodology used within this report, please see the [Appendix](#).

Ecosystem themes across the NbS market

Ecosystem types provide a useful means of differentiating between NbS investments. Five broad ecosystem themes were identified through this review, including: agriculture, forestry, freshwater, marine/coastal

and peatland. A sixth theme, species protection, was included as a distinct theme that cuts across ecosystem types to target the protection of certain species across whole landscapes or seascapes.

While investment is being delivered into NbS across a range of ecosystems, certain ecosystems attract a significantly greater share of the current investment market.

Forestry NbS represent 58% of the total market value analysed, the most valuable sector theme within the wider NbS market. Together with agriculture and freshwater projects, these three sectors make up 98% of the total value of investments identified. This result points to the relative commercial maturity of these sectors, likely driven by the commoditised value of the natural resources that they represent, such as timber, agricultural produce and water.

Although comprising a much smaller share of the wider NbS market, emerging investment models for marine/coastal, peatland and species protection projects are increasing in number. Over 65% of projects reviewed within these categories were launched within the last 4 years; 100% of peatland investment analysed for this report have been transacted since 2017. These sectors typically rely on emerging income streams, such as from voluntary carbon markets and other novel forms of payments for ecosystem services ('PES'), such as nutrient removal from water supplies and biodiversity mitigation payments to compensate for loss elsewhere.

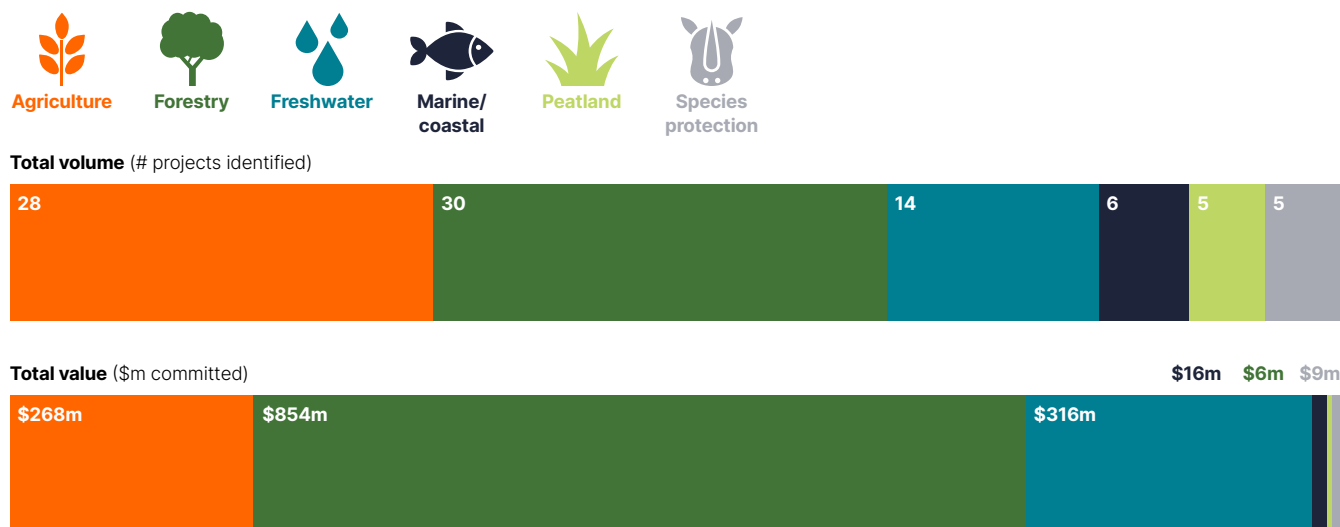


Figure 5 Analysis of global NbS investment themes – share of total number and value of investments reviewed

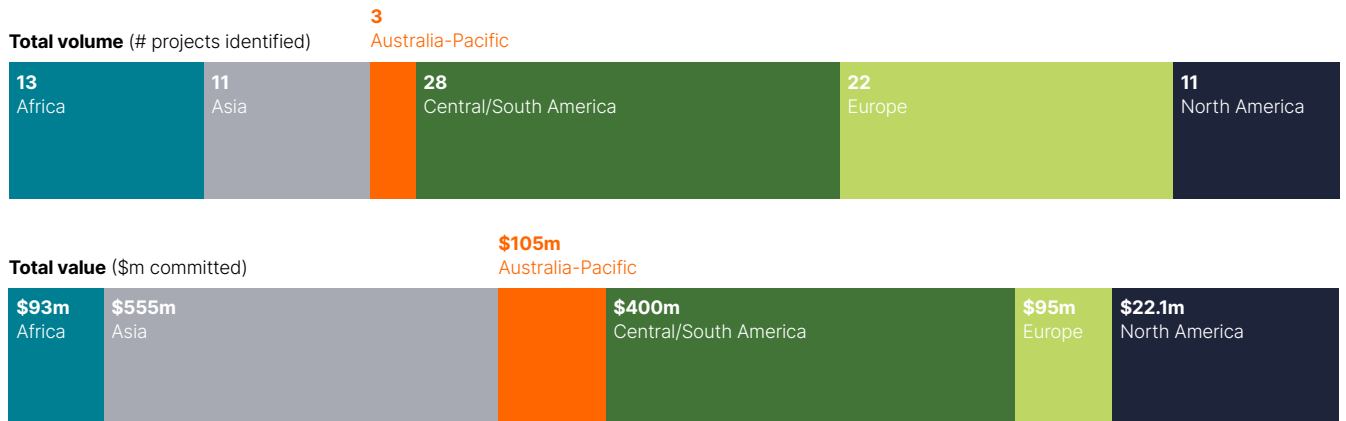


Figure 6 Analysis of global NbS transactions by geography – share of total number and value of transaction reviewed

Investment into NbS is happening across the globe

NbS investments were identified across all five major continents across the globe. No transactions were identified in Antarctica, likely due to the absence of significant resident populations and the Antarctic Treaty, signed in 1961, which prohibits commercial exploitation.¹⁶

The greatest number of transactions analysed for this report occurred in Central/South America, where transaction size is typically smaller but projects are aggregated within portfolio vehicles to deliver scale.

By contrast, the greatest value of investments was found in Asia, largely driven by a single transaction of \$400 million within the forestry sector; if excluded from the dataset, the average transaction size in Asia falls in line with that of Central/South America.

NbS activity on a regional basis approximately aligns to regionally important sectors. Notably, all of the transactions identified in Australia-Pacific are within the agricultural theme; this is unsurprising given that agriculture makes up 55% of Australia's total land use.¹⁷ Other NbS themes were identified in Australia-Pacific but did not meet the criteria for inclusion within the data analysed for this report.

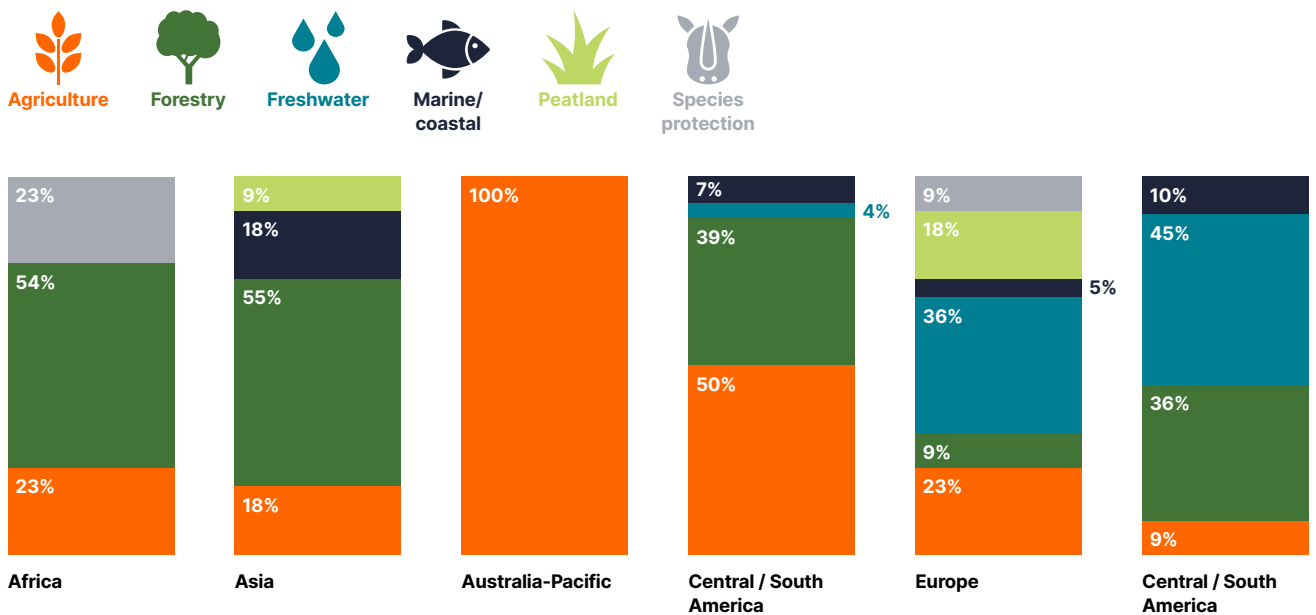


Figure 7 Analysis of global NbS transactions by geography – proportion of NbS sector themes identified on a regional basis

Similarly, agriculture and forestry together comprise a dominant share of the Central/South American NbS market. Home to the Amazon, the world's largest rainforest, South America makes up 54% of global deforestation, 60% of which is driven by land use change for agriculture.^{18,19}

Freshwater projects comprise a significant share of the North American and European markets. In the USA, the policy and regulatory environment enables

mitigation banking for wetland habitat restoration, which has unlocked an investment market for these NbS transactions. In Europe, the freshwater NbS market is driven in large part by corporates (primarily water utilities and consumer goods companies) seeking to achieve supply chain cost benefits and risk reduction from investing in freshwater improvements.

Key Insights

- IUCN defines NbS as actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.
- NbS projects with strong links to existing commodities markets, such as agriculture, forestry and freshwater projects, currently receive the largest share of investment globally.
- Emerging ecosystems, such as marine/coastal, peatland and species protection, are growing their share of unique transactions and investment value, building on growing revenue streams from carbon and other PES.
- Investment into NbS is happening at a global scale. The greatest volume of activity was found in Central/South America and Europe, each representing over a quarter of NbS transactions identified. Asia leads the global market by value, driven by a single outsized transaction of \$400 million (within an identified regional market of \$555 million).
- Access to investment data is limited with no dedicated platforms for public information on NbS transactions, creating a mismatch between publicly quoted economic statistics and corresponding market data. As a result, the dataset analysed for this report is not intended to be exhaustive but comprises a representative sample of the known NbS market.

Nature-Based Solutions Business Models

In order to determine key opportunities for investment into NbS, investors must first understand the business models that underpin the generation of financial returns, alongside the target impact outcomes.

Across the 88 transactions analysed for this report, two major categories of business model emerged, based on commodity and service **sales** and creation of **cost benefit**. Sales models generate revenue through the sale of commodities, ecosystem services and other services generated by NbS. Cost benefit models generate revenue through capturing a portion of operational or capital cost savings to beneficiaries – for example, reducing costs of storm damage to coastal businesses by investing in natural systems that protect coastlines (such as mangroves and coral reefs).

Sales models are the most common revenue model, present in 91% of transactions identified. Cost benefit models were used in 24% of the projects reviewed.

While this measure indicates the relative prominence of these major business model categories, it does not account for a process known as ‘stacking’, whereby projects utilise multiple revenue streams to produce the optimum financial returns and impact outcomes. 15% of

the transactions identified stacked revenues from both sales revenues and from capturing cost benefit, whilst 43% of the transactions identified had stacked revenues from within the same category (for example, stacking multiple sales revenue streams, such as commodities and carbon credit sales).

A note on analysis of NbS business models

Analysis has not been conducted on the basis of investment value due to the complexity of stacked revenues and limited verifiable data on transaction sources and uses of funding. The analysis presented in this section was therefore conducted against the number of transactions where each type of business model (sales or cost savings) is present. The combined shares of sales and cost benefit models is greater than 100% due to situations where revenues are stacked across both categories. More detail on the methodology used for analysis is provided in the [Appendix](#).

In the sections below, we describe the key features of different NbS business models and provide examples of precedent transactions where these have been used to support repayable investment.



Figure 8 Analysis of NbS business models – representative share of sales and cost benefit models

Sale of Products and Services

Selling products and services generated revenue for a significant majority (91%) of transactions identified. These revenues were derived from the sale of one or a combination of:

- **Commodities** – including timber and agricultural produce
- **Payments for ecosystem services ('PES'):**
 - **Carbon credits** – predominantly sold through the voluntary carbon market
 - **Other credits** – predominantly sold through locally regulated markets for nutrient and biodiversity credits
 - **Other PES** – incentive payments from a beneficiary/user of an ecosystem to the provider of an ecosystem service (specifically those who preserve or maintain the ecosystem)
- **Other services:**
 - **Services** – including ecotourism offerings and area management (often monetised through access/entry fees)
 - **Rental income** – payments to landholders/property owners for use of land/property

Commodity sales, often linked to established commercial markets, comprise the greatest volume of NbS project business models identified. These commercially mature market segments are more likely to be considered capable of attracting investment. However, traditional commercial business models do not inherently deliver high-quality NbS and can create negative consequences if not managed carefully, an issue which is discussed in further detail in the section below.

Monetisation of ecosystem services plays a significant role in the delivery of NbS, together underpinning the business models of almost half of the identified transactions. Sale of carbon offsetting credits is the most important of these revenue streams, utilised by 34% of the transactions reviewed. Carbon credit sales are the most common form of ecosystem service identified, and often stacked with other revenue streams to ensure a viable business model.

Stacking commodity sales and carbon credits

The majority of transactions identified through this review generate revenues through the sale of commodities. These commodities, such as timber, agricultural produce and clean water, represent existing asset classes within financial markets. The NbS approach enables investors to continue investing in these assets by using new, nature- and climate-positive methods.

Many of these established commodities can produce additional climate change mitigation through reducing carbon emissions (for example, by restoring peatland) or sequestering/storing carbon (for example, by planting trees). By monetising these services, some NbS projects can generate additional benefits for nature and for investors.

The following examples demonstrate the stacking of commodity sales and carbon to support investment into NbS projects.

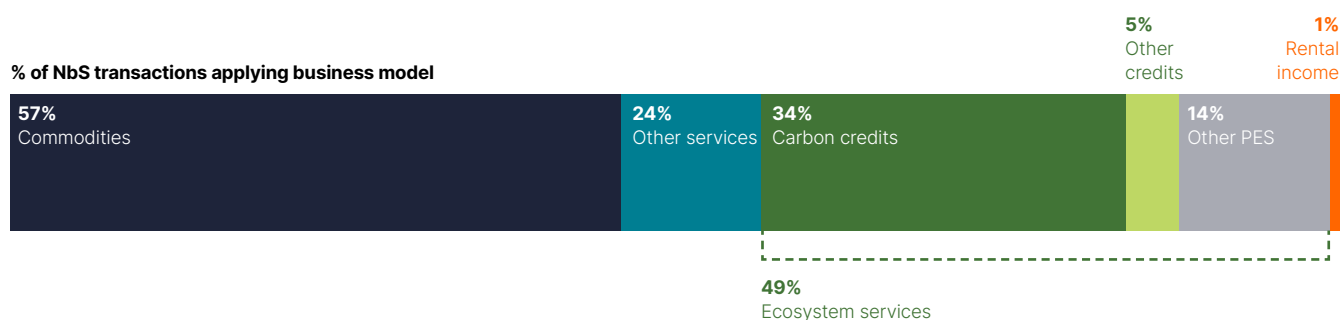


Figure 9 Analysis of NbS business models – representative share of sales models; more than 100% due to multiple revenues being stacked within project structures



Miro Forestry

Investment terms

Investment size	\$56m
Investor type(s)	Institutional investors, development banks
Investment date	2020/21
Investment horizon	11 years (for quasi-equity)
Expected returns	Fixed dividend of 6.5%

Project description

Miro Forestry & Timber Products seeks to afforest plantations on degraded land in Ghana and Sierra Leone.

\$56m of equity and quasi-equity investment is being used to expand forest plantation and timber processing capabilities.

Investors include: FMO, Dutch Fund for Climate and Development, Finfund, FinDev Canada, CDC Group and Mirova's Land Degradation Neutrality Fund.

Project sponsors



Business model

Miro operates Forest Stewardship Council (FSC) certified plantations and timber processing facilities.

Revenues are generated through the sale of high-value timber.

Carbon credits generated by the afforestation of degraded land provide additional income.

Target impact

42,500 hectares of land afforested and sustainably managed, including 7,500 hectares of conservation area.

5MtCO₂e sequestered.

1,500 new rural jobs created.



Café Selva Norte

Investment terms

Investment size	\$14.5m
Investor type(s)	Institutional investors
Investment date	2019
Investment horizon	15 years
Expected returns	12% (net expected internal rate of return)

Project description

Urapi Sustainable Land Use is transforming 20,000 hectares of deforested and degraded land in Northern Peru into productive agroforestry systems through the sustainable development of the coffee value chain, reinforcing and empowering cooperatives and their producers.

Mirova's Land Degradation Neutrality Fund invested into a Urapi Sustainable Land Use special purpose vehicle (SPV) in 2019.

The SPV provided investment to the producer cooperatives in the form of:

- Secured term loans for delivering micro-credit loans to smallholder farmers; and
- Equity for the construction of a coffee processing plant.

Project sponsors



Business model

A number of producer cooperatives receive funding to provide loans to their membership of smallholder coffee producers in exchange for the producers transitioning their activities to best-practice climate-smart agroforestry – including the acquisition of a processing plant.

Smallholder coffee farmers repay the cooperative loans through revenues generated by the sale of coffee and other agroforestry products.

Carbon credits are generated through protection of forest and restoration of degraded agricultural land to provide additional income for the cooperative members.

Target impact

8,000 hectares of degraded land restored.

12,000 hectares of forest protected.

2,000 producers supported.

1.29 MtCO₂e emissions reductions.

Voluntary carbon markets are a growing revenue opportunity for conservation

Carbon is the second most prevalent source of income for NbS projects and is continuing to grow as an important opportunity for project developers across multiple ecosystems. Over the last 3-5 years, voluntary carbon markets have stabilised after decades of volatility, and recent research published by University College London forecasts the global voluntary carbon market to

grow to £18 billion per annum by 2030 compared to just £0.3 billion in 2020.²⁰

As carbon markets continue to develop, a greater proportion of projects are likely to be funded exclusively from carbon offset sales. The following example demonstrates the use of carbon as the sole source of revenue to generate investor returns.



Sumatra Merang Peatland Project

Investment terms	
Investment size	€5.1m
Investor type(s)	Impact investors
Investment date	2017
Investment horizon	4 years
Expected returns	Undisclosed

Project sponsors



Project description

Forest Carbon, in partnership with Global Alam Lestari, is actively managing more than 22,000 hectares of vulnerable peatland in Indonesia to reduce the risk of forest fire, strengthen the rural economy, and protect habitat for the Sumatran tiger.

In 2017, the Althelia Climate Fund invested €5.1m (~\$6m equivalent) for the restoration and protection of the peatland forest.

Investor returns will be paid through the sale of verified carbon credits.

Business model

The project business model is built around the sale of verified carbon credits from peatland restoration as a source of long-term financing.

The project is expected to verify 3.4m carbon credits by 2021, and over 30m of credits over the project initial licence period (25 years).

Target impact

22,934 hectares of peatland rainforest restored and protected in the Merang biodiversity zone.

7.8MtCO₂e carbon emissions reductions.

145 jobs created or supported in areas such as dam construction and forest patrol (25% of which will be held by women).

€376,000 (~\$450,000 equivalent) invested in economic growth for local communities.

The value of tourism

Tourism services provide a key source of income for many NbS projects globally. Nature conservation can provide an attractive offering for tourists while creating important employment opportunities for local communities. The

global Covid-19 pandemic has materially reduced tourism incomes for these communities. The following example demonstrates how investment has been delivered into a seascape area with returns being generated through tourism income.



Arrecifes del Sureste Marine Sanctuary

Investment terms	
Investment size	\$3.6m
Investor type(s)	Impact investors, philanthropic donors
Investment date	2020
Investment horizon	8 years
Expected returns	Undisclosed

Project sponsors

Project description

The Alianza for the Arrecifes del Sureste Marine Sanctuary in the Dominican Republic oversees the management of an 8,000km² marine area alongside two of the country's main tourism centres, which receive over 4 million tourists annually.

The Alianza is a public and private partnership to co-manage the MPA. The special purpose entity (SPE) is funded by a mix of impact capital and catalytic funding from donors.

Investment into the structure has been made in the form of concessionary debt with an 8-year repayment period (including a grace period of 24 months).

Business model

The Arrecifes del Sureste Marine Sanctuary generates revenues from ecotourism activities, including:

- Statutory user fees;
- Nature-based tourism activities; and
- Creation of a visitor centre to facilitate further sales by engaging visitors with marine life.

Cost Benefit

Cost benefit models allow users or beneficiaries of ecosystem services to invest in their development to reduce operational or capital costs. These costs can be reduced across public, private and philanthropic sectors.

- **Corporate cost savings** – activities that reduce corporate operational and capital costs

Target impact

8,000km² of marine protected area under effective management.

16,000 households provided with improved livelihoods.

- **Public and philanthropic cost savings** – activities that reduce the financial risk of delivering target outcomes

Climate change adaptation activities, which improve resilience and mitigate the risks of future costs, offer an example of where cost benefits can be achieved against the impacts of future disruption.

Cost benefit models comprise a smaller proportion of the overall NbS market than commodity and service sales models, likely due to the location- and/or outcome-specific nature of each project. For example, whereas the sale of forestry products can reach international markets, achieving a cost benefit through nutrient removal from a water course is highly specific to the catchment and to the beneficiaries of that catchment, which creates practical limitations to scaling and replicating.

Corporate cost savings

Many corporate sectors rely on nature and natural processes to deliver their corporate objectives; for example, water companies in providing clean water for consumers. In some cases, natural infrastructure can provide more cost-effective solutions for addressing corporate needs than traditional man-made solutions. The following example demonstrates how investment has been used to deliver a cost benefit to a corporate sponsor using an environmental impact bond ('EIB') mechanism to manage performance risks.



DC Water EIB

Investment terms	
Investment size	\$25m
Investor type(s)	Impact investors, institutional investors
Investment date	2016
Investment horizon	30 years (5-year mandatory tender)
Expected returns	3.4%, based on performance (0.5% low case, 6.3% high case)

Project sponsors

Project description

DC Water, in partnership with Quantified Ventures, Calvert Impact Capital and Goldman Sachs, implemented a pay-for-success investment model to fund the delivery of green infrastructure to improve water quality for the city of Washington, D.C.

DC Water issued an environmental impact bond to fund the construction of green infrastructure, partially transferring the risk of performance to investors (Goldman Sachs and Calvert Impact Capital).

Returns are paid based on performance of the infrastructure at predetermined periods over the life of the investment.

At year 5, a contingent payment may be due to investors based on overperformance of the green infrastructure interventions (\$3.3m payment from DC Water). In the case of underperformance, investors will receive a reduced financial return.

Business model

DC Water, the city's water utility, generates revenues through charging fees to consumers for access to clean water.

The cost of providing clean water to consumers can be significant, especially where new 'grey infrastructure' (such as water pipelines) must be built to accommodate increased volumes.

However, 'green infrastructure' (such as permeable pavement, green roofs, and landscaped retention facilities) mimics nature over time and can lower the costs to DC Water. This cost saving can be captured and returned to consumers and investors.

- Target impact**
- 20 acres of green infrastructure constructed to:
- Capture ~650,000 gallons of stormwater run-off over time; and
 - Deliver new urban green spaces for the city.

Philanthropic cost savings

Grant funding and philanthropic donations are significantly smaller pools of capital than repayable capital and are often used to fund activities in exchange for certain outcomes. Where outcomes are unproven, grant funders and philanthropic donors face the risk of failure from

funded activities. EIBs can be used to produce target outcomes for funders and donors while reducing upfront risk to the philanthropic donor delivering the NbS. The following example demonstrates how an investment through an EIB mechanism has been used to deliver a cost benefit to a consortium of philanthropic donors.



Rhino Impact Investment (RII) Wildlife Conservation Bond

Investment terms	
Investment size	\$100m
Investor type(s)	Supranational agencies, development finance institutions, impact investors
Investment date	Expected in 2021
Investment horizon	5 years
Expected returns	5-10% (based on impact)

Project sponsors

Project description

The RII Wildlife Conservation Bond is the world’s first pay-for-success financial instrument linked to species conservation.

The Wildlife Conservation Bond financing mechanism plans to use a World Bank, International Bank for Reconstruction and Development IBRD AAA-rated bond to channel new financial resources to increase black rhino populations in target protected areas in South Africa.

Business model

Wildlife Conservation Bond investors forego bond coupon payments, which are instead used to fund conservation of priority rhino populations.

At the conclusion of the five-year project, if the rhino population has grown to pre-defined rates that are independently verified, the bond holders receive a conservation success payment, paid by the outcome payer(s).

Target impact

Protection of endangered rhino species with the aim of increasing the growth rate of rhino populations by 4% per annum.

The bond is designed to tap into institutional investors to help fund conservation and transfer risks of achieving conservation results from traditional donors to investors.

Key Insights

- NbS business models can be broadly grouped into two categories: sales (of commodities, ecosystem services and other services) and creation of cost benefit (in relation to operational or capital costs).
- Sales are often linked to well-established commodity markets (such as timber, agricultural produce and clean water), which are considered commercially mature sectors and capable of attracting institutional investment. While these commercially mature sectors offer scalable opportunities to evolve into NbS activities, it should be noted that traditional commercial models do not inherently deliver high-quality NbS and can create negative consequences if not managed carefully, an issue which is discussed in further detail in the section on Measuring Impact.
- Ecosystem services provide an emerging source of income for NbS projects, predominantly driven by the development of global voluntary carbon markets over recent years. Carbon credit sales provide a relatively new but rapidly growing revenue stream for NbS projects across a range of different ecosystems.
- Cost savings models comprise a smaller proportion of the overall NbS market, likely due to the location- and/or outcome-specific nature of each project. As a result, these projects also tend to be smaller in size than commercial sales models.
- A significant share of projects reviewed for this report (43%) utilise more than one income stream to underpin the business model. This approach is known as 'stacking' of revenue streams to achieve the target financial outcome.

Key Actors for Delivering Nature-Based Solutions

A number of key actors are involved in the development of NbS. While there is significant cross-over between roles and responsibilities, with single actors often providing multiple roles, understanding the key functions of each group of actors and corresponding risks is essential to pursuing the development of NbS pipeline.

The key actors involved in the delivery of NbS include:

- Project sponsors
- Project developers
- Landowners
- Buyers and beneficiaries
- Governments and policymakers
- Fund managers and intermediaries
- Independent outcomes verifiers
- Funders and investors

Project sponsors

Role in delivering NbS:

Project sponsors lead the provision or procurement of resources and support required to create an NbS project

The role of sponsor is typically conducted by a key beneficiary or charitable patron/champion of a project, such as an impact-driven NGO, a corporate seeking cost savings or a profit-seeking specialist private company.

Specialist private companies comprised the largest share of project sponsors from the transactions identified (41%). These for-profit specialist companies were established for the purpose of delivering and investing in NbS, often targeting specific sector themes.

Aligned corporates and NGOs sponsored 23% and 10% of transactions respectively. The small representation of NGOs is likely due to reliance on finite donor capital and risk of delivery. Additionally, NGOs do not typically invest repayable capital into NbS, and may not have been captured within our analysis. (See our Project methodology for more information.)

Cross-sector partnerships are a key enabler to delivering investment into NbS: 20% of transactions were sponsored by a consortium of public, private and/or philanthropic sponsors.

Project developers

Role in delivering NbS:

Project developers are responsible for designing and delivering NbS, and can include NGOs / charities, corporates, public sector, or partnerships comprising multiple organisations.

Project developers can be conservation NGOs, public sector authorities or private developers. Developers are closely linked to sponsors, particularly where project development is led by a key beneficiary of project outcomes.

Project developers must have expertise in both conservation and finance to build investment-ready projects. Growing NbS opportunities risk attracting perverse interests from opportunistic developers where financial benefits are prioritised over environmental outcomes.

Project development is a high-risk activity, and relies upon grant and patient capital, which is in short supply and competitive to secure. High-quality NGO/charity project developers require access to funding and resource support to accelerate the creation of NbS pipeline at scale in order to develop sufficient track record to attract investment.

Investors should therefore engage with impact-driven project developers to ensure meaningful impact for nature and communities, minimising the risk of negative impacts and (where possible) capturing first-mover advantage.

Landowners

Role in delivering NbS:

Landowners and managers control the use of land and must be engaged to enable use of an area for delivery. For the purposes of this report, landownership also includes control of marine and coastal areas.

Access to control over land/seabed use is a critical enabler for development of NbS. Land use models for NbS (including marine/coastal areas) can comprise land acquisition, contractual relationships with land managers, and/or designation of areas.

Land acquisition relies on land being available for sale and can be a costly approach due to high upfront costs and long-term funding need. Acquisition can be challenging where land rights are not well defined or enforced in the local jurisdiction.

Contractual relationships allow project delivery partners to agree land use changes with those in control of land in exchange for a financial (or in-kind) benefit. This can be a cost-efficient approach to NbS delivery as opposed to land acquisition but relies on suitable land law and enforcement processes operating in the jurisdiction.

There is evidence of growing global interest in community-based land ownership or control, which could promote adoption of NbS projects.

Designation of land/marine areas involves a legal process of approving specific areas for particular uses. Local policy and regulation is required to enable designation of areas for conservation, such as marine protected areas ('MPAs') and community forests, as well as long-term funding for monitoring and enforcement.

Although designation is the responsibility of public authorities, a similar outcome can be achieved by landowners who have the power to covenant their landholdings in perpetuity for conservation. This enables long-term delivery of NbS without the requirement for freehold ownership over the life of the NbS project. However, this relies on the stability of land agreements, underpinned by robust land law with the ability to enforce infringements.

Buyers and beneficiaries

Role in delivering NbS:

Buyers and beneficiaries are a primary source of income generation for NbS projects.

The needs of buyers and beneficiaries must be well understood to ensure that NbS projects are able to generate and maximise revenues. Close engagement with target buyers can significantly reduce NbS project risk through offtake agreements with delivery partners, creating visibility over supply for buyers and demand for project developers.

Emerging products, such as carbon credits, have seen examples of buyers or beneficiaries investing in project development in return for verified carbon credits. However, carbon buyers must demonstrate clear net zero strategies (for example, against the [Science-Based Targets](#)) to ensure offsetting is only used with quality carbon abatement strategies and to avoid damaging consumer confidence in the impact of the carbon market.

Carbon credit brokers can support sales of transactions by matching sellers with buyers, and aggregating supply to optimise pricing and volume of sales. Transparency is critical to ensuring that benefits are delivered to the project and that value leakage is minimised or eliminated.

Governments and policymakers

Role in delivering NbS:

Governments and policymakers have a critical role in catalysing the creation of new, well-functioning NbS markets, as well as enabling their sustained growth.

Introduction of appropriate policy, such as biodiversity net gain regulation, can catalyse NbS implementation and accelerate market growth. In the UK, the proposed Environment Bill will establish incentives for landowners to implement NbS through the environmental land management scheme ('ELMS') and develop the supply chain for biodiversity net gain at a national scale.

Consistent regulation and enforcement of NbS markets is important for ensuring standards of quality without limiting NbS implementation. The water sector in the UK, for example, is highly regulated but existing regulations prohibit or limit the amount of investment that water utilities are able to make into NbS, despite the potential to deliver significant cost benefit when considering multiple impact outcomes.

Given the nature of NbS as real assets, appropriate siting is critical to project performance. However, relatively new uses of land and sea for delivering NbS can fall outside the scope of existing planning and licensing criteria. By creating supportive planning and licensing regulations, policymakers can enable NbS delivery and replication at scale.

Other emerging sectors, such as voluntary carbon and biodiversity net gain markets, will require appropriate, well-considered regulation and enforcement to ensure that financial incentives do not incentivise poor quality or negatively impactful projects.

Fund managers and intermediaries

Role in delivering NbS:

Fund managers are responsible for delivering investment strategy and managing investments to ensure that financial, environmental and social objectives are achieved.

Intermediaries include financial advisors, which bring financial capacity and pipeline development to NbS markets.

NbS typically require active management, unlike with more commercially mature asset classes, and therefore require specialist management teams. High-quality NbS fund management requires specialist expertise in delivering both financial returns and impact outcomes, but fund managers require significant working capital to establish and operate quality pipelines. There are relatively few active NbS fund managers with the requisite skillset and relationships, and those that are in operation are not always available in the country of delivery, relying on third parties for origination and asset management. Investing in the development of high-quality fund managers is therefore key to unlocking investment at scale.

Other intermediaries include financial advisors, who are responsible for specialist transaction structuring, and developing financial capacity within NbS developers to create investment-ready pipelines. NbS projects often require specialist asset managers, who are typically contracted by the fund manager. Project developers sometimes assume the role of asset manager, providing continued operational oversight for NbS project delivery.

Independent outcomes verifiers

Role in delivering NbS:

Independent verifiers are responsible for monitoring and evaluating project outcomes and providing assurance to investors that impact objectives are achieved.

The role of independent verification is often provided by expert academics/researchers, NGOs or specialist verification authorities. The costs of verification can be significant and erode investment returns. However, appropriate verification is important to ensure the quality of impact. Access to cost-effective independent verification is key to enabling investment-ready projects.

Certification and accreditation models, while not enforced through policy or national regulation, ensure effective assessment of quality and provide comfort to investors and other market actors. Sector-specific certification models such as carbon credit certification under Verra, Gold Standard, Plan Vivo and others provide assurance over specific revenue models. IUCN launched its Global Standard for NbS in July 2020 to align best practice NbS development at a global scale. Such international standards provide a route to assurance, verification and accreditation and there remains a need to develop these further to underpin NbS.

Funders and investors

Role in delivering NbS:

Funders and investors provide capital for establishing and operating NbS projects.

Today's NbS market is predominantly funded by public sector and philanthropic capital, where outcomes are linked to organisational objectives. However, creating financial pathways for the global capital markets to deliver restored and enhanced biodiversity is critical to filling the funding gap for nature. Controlling an estimated \$87 trillion in assets, institutional investors have a critical role to play in bringing the NbS sector to scale.

Most NbS have lifecycles of ≥ 5 years, appealing to investors with long-term investment strategies and a focus on real assets.

Key Insights

- Specialist companies with expertise in delivering investment-ready projects across specific NbS themes are the largest group responsible for sponsoring and developing NbS projects, reflecting the high degree of technical knowledge and specialism required in NbS delivery. Cross-sector partnerships are important for convening multiple stakeholders to catalyse the development and delivery of high-impact NbS projects.
- Capitalised and experienced project developers with conservation expertise and financial literacy are required to ensure the development of a high-quality, investment-ready pipeline of NbS projects.
- Access to land or sea is a critical enabler for scale. While land ownership provides the greatest amount of control, it can be costly and difficult to procure. Other means of acquiring spatial areas include contractual relationships with users/beneficiaries or through legal designation for conservation outcomes.
- Governments and policymakers have a key role in creating policy for catalysing and sustaining new NbS markets and establishing appropriate regulatory and enforcement practices to ensure consistent NbS quality.
- Specialist fund managers and financial intermediaries are critical for building quality pipelines and deploying capital. There are relatively few active, dedicated NbS fund managers with the requisite expertise and they are not always available in the country of delivery. Investing in the growth of high-quality, specialist fund managers is key to accelerating the expansion of NbS investment.
- Independent verification of impact outcomes is important for ensuring standards of quality. Verification provides assurance to investors and other key stakeholders. Certification or accreditation models, hosted by qualified institutions, can provide a useful tool for enabling consistent assessment across a range of NbS projects, but must be managed carefully to avoid conflicts of interest between certification income sources and impact objectives. International standards provide an established route to assurance, verification and accreditation and there remains a need to develop these further to underpin NbS.

Investing in Nature-Based Solutions

Investment in NbS has traditionally been sourced from public sector funders, philanthropic donors, and impact investors. However, there is evidence of growing interest and opportunities for institutional investors to engage in the NbS market.

Across the 88 projects reviewed, six major investor types emerged:

- **Institutional investors** – including banks, private equity investors and thematic funds;
- **Corporates** – including water companies, consumer goods companies and raw materials producers;
- **Public sector organisations** – including local, national and regional governments;
- **Development finance institutions (‘DFIs’)** – including supranational organisations and overseas aid organisations;
- **NGO/charities** – consisting of NGOs and charities with environmental and/or social objectives; and
- **Philanthropic donors** – including high net worth individuals, family offices and foundations.

Institutional investors provided capital for the greatest proportion of projects (60% of the identified transactions), followed by public sector funders (39% of reviewed transactions). Corporate investors provided capital for over a quarter of the transactions reviewed, demonstrating the important role of aligned corporates in developing and growing the NbS market.

The Use of Blended Finance

Analysing types of investors participating in NbS illustrates the range of actors involved in delivering these projects. Many of the transactions identified convene multiple investor types through blended finance structures, which strategically apply grant funding to mitigate specific investment risks and mobilise the flow of private capital into funds/projects. Blending is often used to attract investment into impactful projects that are not considered investable on a standalone basis, whether due to the high risk or sub-scale returns.

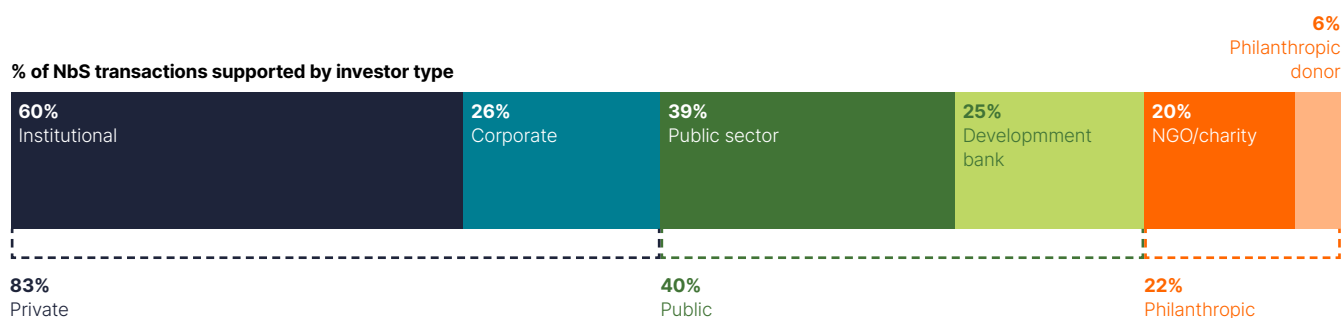


Figure 10 Analysis of NbS investors – representative share of investor types; more than 100% because many projects received investment from multiple investor types.

A note on analysis of investor types

Analysis has not been conducted on the basis of individual investment value due to limited verifiable data on individual ticket sizes within each transaction. The analysis presented in this section was therefore conducted against the number of transactions where each investor type is present. The analysis conducted for this report only considered transactions where repayable

capital was used to finance NbS. As a result, the above analysis excludes NbS where only non-repayable capital (predominantly from public sector, NGOs/charities and philanthropic donors) was used. Non-repayable capital is a significant enabler for development of NbS to date and its role in the wider market is not captured in this report. More detail on the methodology used for analysis is provided in the [Appendix](#).

Blended finance was used in almost half (48%) of the transactions reviewed, and was present across all ecosystem themes, demonstrating the need for strong multi-sector partnerships to deliver high-quality NbS. This illustrates the early-stage maturity of the overall NbS market, and highlights the need for strategic use of public and philanthropic capital to help grow and prove NbS investment models. As the NbS market matures, direct private investment is likely to dominate the market, with blended finance remaining focussed on the least developed and nascent forms of NbS.

Where Does NbS Investment Originate From?

While transactions were identified in all major continents across the globe, the source of the capital provided for the identified transactions predominantly originates from Europe and North America. Analysis of the geographic source against the geographic use of funds suggests that European investors are engaged with NbS markets but there are a lack of investment-ready NbS projects in Europe.

Investing across multiple or remote jurisdictions can pose practical challenges to identifying, engaging and collaborating with project delivery partners and project supply chain. NbS typically require active management, unlike with more commercially mature asset classes, and require specialist delivery and management teams, which are not always readily available in the local jurisdiction and therefore expertise must be built or imported.

Additionally, investing across disparate geographies can reduce the connection between the investor and the investee, making transactions and asset performance difficult to manage.

Common NbS Investment Instruments

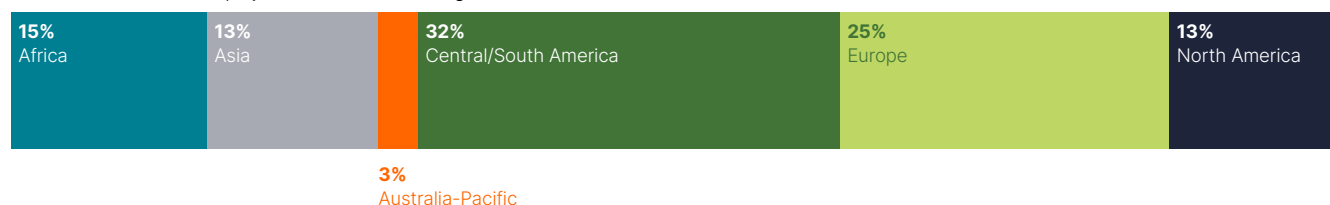
The predominant types of investment instruments identified include specialised funds, concessionary and commercial debt facilities, corporate/commercial bonds, and impact bonds.

Specialised NbS funds (providing debt, equity or a combination) comprise a large proportion of the investment vehicles that provide capital for NbS. In some cases, funds invest repayable capital alongside non-repayable capital to provide pre- and/or post-investment support to projects, reducing project risks and enabling improved returns for investors.

Commercial and concessionary loans can be applied where proven business models with predictable cashflows are used to deliver NbS. For example, tourism businesses that provide a sustainable service offering as part of a proven business model can use commercial loans to fund their upfront costs and working capital.

Bonds are a relatively common investment instrument in the NbS market. Traditional corporate bonds and labelled 'green' or 'sustainability linked' bonds are frequently used by water companies to raise investment for delivering water security solutions, including NbS.

Use of investment (% of projects identified in the region)



Source of investment (% of projects receiving investment from the region)

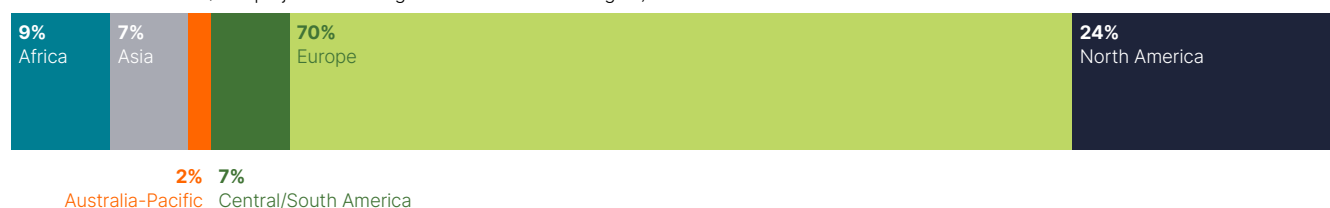


Figure 11 Analysis of investment origin and application

More novel bond structures, such as impact bonds, which use an outcomes payment mechanism to deliver investment, are an increasingly proven investment model for delivering high-impact results from investment. Examples include the Wildlife Conservation Bond and the DC Water Environmental Impact Bond, both detailed [above](#).

Investment Terms Across NbS Transactions

NbS investment terms are frequently not disclosed, and when they are reported typically only high-level information is provided. The total funding amount was publicly available for 61% of the transactions identified, but investment structure (including individual ticket sizes and proportions of repayable investment versus non-repayable funding) were often not provided. One-third of the transactions reviewed provided indications of return expectations, but specific information on returns (such as an IRR %) are only disclosed in five cases. In these cases, returns range from 2-12% based on investment type and, where applicable, after blending.

Reasons for lack of disclosure of investment terms include:

- Commercial sensitivity prohibiting involved parties from disclosing relevant investment terms;

- Transactions being conducted internally to an organisation (such as in the case of corporates investing to achieve a cost benefit) and there is no requirement to disclose publicly; and/or
- Project counterparties prioritising impact outcomes over financial outcomes, which are therefore deprioritised or not deemed necessary for disclosure.

Investment sizes

The identified transactions reveal a wide range of investment sizes, from \$90k to \$400 million. However, there is a clear tendency towards small-scale investment sizes: 55% of disclosed investment sizes were under \$10 million, and 90% were under \$100 million. This concentration of small-scale investments is revealed through analysis of average transaction sizes: the mean average transaction size for identified transactions is \$30 million, and the median is \$9.3 million. In comparison, the average size of global private equity transactions is \$157 million. This demonstrates the disconnect between the average investment need of NbS projects and the target investment size for institutional investors.²¹

Fund managers have been known to experience significant challenges in raising first-time funds as a result of institutional investor limitations around minimum investment sizes and maximum concentration within single funds.

Transaction size (\$ equivalent)



Figure 12 Analysis of NbS investment size – share of transactions identified within each investment size range

% of NbS transactions disclosing returns



Figure 13 Analysis of NbS expected returns - share of transactions identified disclosing return expectations

A note on analysis of return expectations

This review sought to understand returns targeted by private investors in NbS transactions, and therefore corporate returns – predominantly based on cost savings

models, and not publicly disclosed – were not included within this analysis. More detail on the methodology used for analysis is provided in the [Appendix](#).

Return expectations across the NbS market

Almost half of the transactions reviewed for this report do not disclose returns expectations, and only five disclose quantifiable, comparable amounts (for example, in IRR% terms). The vast majority of disclosed values are qualitative only, referencing ‘market rate returns’ and ‘low positive returns’. 42% of the transactions reviewed claim to generate market rate returns, with 11% of investments expected to generate sub-market returns.

Investment structures

Alongside a review of individual transactions, Finance Earth identified 86 financial instruments (predominantly funds) that target investment into NbS, representing a total value of over \$12 billion committed capital. This demonstrates an eightfold increase on the total value of transacted investments across our dataset (\$1.5 billion), illustrating a significant gap between committed capital and deployment into NbS projects to date. This gap reveals the challenges of deploying capital into NbS

projects, which are often highly specialised and early stage in their development. Investing in high-quality project developers and financial intermediaries could accelerate development of NbS pipelines so that they are of suitable volume and quality to match investor appetite.

Specialised NbS funds

As many NbS projects are constrained by physical environments and typically small-scale investment sizes, aggregation of projects into aligned portfolios is a crucial mechanism for building scale to enable institutional investment. As a result, many of the identified investment instruments are designed to strategically aggregate projects to enable investment. However, aggregation requires sufficient deal volume to enable investors to effectively spread risk across a portfolio and achieve an appropriate fund size.

The following examples demonstrate fund models for delivering investment into specific NbS asset classes.



New Forests

Investment terms	
Assets under management	Approximately US\$4.5bn
Date active	2005 – present
Instrument type	Equity (unlisted/private)
Expected returns	Undisclosed
Target investors	Institutional investors
Fund manager	New Forests
Investments made to date	1 million ha of forests, rural land, and conservation investments under management
Use of blended finance	Yes, through the Tropical Asia Forest Fund 2 (TAFF2). Undisclosed for other funds.

Investment model
New Forests is an asset manager with a focus on sustainable forestry in Australia, New Zealand, Asia and the United States, with approximately 1 million hectares of forests, rural land, and conservation investments currently under management.
Investor returns are generated through: <ul style="list-style-type: none"> • Sale of timber; and • Sale of carbon credits, where applicable.

Target impact
More than 754,000 hectares of third-party certified forest under management.
141,000 hectares of forest under management classified as conservation zones or protected areas.
169.3MtCO ₂ e stored in production forests as at end of 2020.



Ecosystem Investment Partners

Investment terms	Investment model
Assets under management \$939m	Ecosystem Investment Partners (EIP) is a US-based investment firm specialising in the restoration and mitigation of water and catchment solutions.
Date active 2005 – present	
Instrument type Private equity	EIP develops mitigation banks, pay-for-performance models and bespoke solutions to invest in the restoration of freshwater wetlands and streams across the USA, with returns generated based on wetland mitigation credits.
Expected returns Undisclosed	
Target investors Institutional investors	
Fund manager Ecosystem Investment Partners	Target impact
Investments made to date 48 projects	~45,000 hectares of wetland restored.
Use of blended finance No	~200 miles of streams restored.

NbS bond issuance

The following example demonstrates the issuance of a bond for delivering investment into NbS.



Seychelles Blue Bond

Investment terms	
Assets under management	\$15m
Date active	2018 – present
Instrument type	Debt
Expected returns	6.5%
Target investors	Supranational funders, institutional investors, impact investors
Fund manager	Development Bank of Seychelles (DBS) and Seychelles Conservation and Climate Adaptation Trust (SeyCCAT)
Investments made to date	Undisclosed
Use of blended finance	Yes

Investment model

In 2018 the Republic of Seychelles launched the world’s first sovereign blue bond — a pioneering financial instrument designed to support sustainable marine and fisheries projects in the country.

The bond benefits from one credit enhancement instrument: a partial guarantee by the World Bank (IBRD) of \$5 million. Seychelles also benefited from a concessional loan of \$5 million from GEF, which partially subsidises the bond’s interest payments from 6.5% to 2.8%.

The bond was privately placed with three private investors: Nuveen, Prudential and Calvert Impact Capital. The majority of the transaction costs for the bond were covered by the Rockefeller Foundation.

Project sponsors



Target impact

The proceeds will support the transition to sustainable small-scale fisheries, including the rebuilding of fish stocks, harvest control and complement marine projects.

Furthermore, it provides additional funding for the development of Seychelles’ Blue Economy, in line with the Seychelles Marine Spatial Plan and the management of sustainable-use zones as well as the development of new sectors such as aquaculture.

The blue bond is an innovative financing instrument that complements the Debt Swap for Conservation and Climate Adaptation that Seychelles did with the support of TNC.

The blue bond is cofinancing the World Bank SWIOFish3 project, which supports a number of reforms of the fisheries sector to transition to sustainable fisheries.

Outcome payment mechanisms for delivering NbS

Outcome payment mechanisms are an emerging investment structure that can be used for delivering NbS. Outcome payment mechanisms enable buyers or beneficiaries of NbS to transfer the risk of delivering the NbS to investors in exchange for a financial return, which is paid upon pre-defined outcomes being achieved.

The examples described in the Cost Benefit business model section, the DC Water EIB and the Wildlife Conservation Bond, illustrate how outcomes payment mechanisms can be used to generate cost savings for corporate and philanthropic beneficiaries.

Key Insights

- Data that is available on NbS is often high-level and rarely discloses investment terms or structures. Public disclosure is critical to increasing the supply of investment for NbS delivery by supporting project developers and intermediaries to increase the supply of quality pipeline and attract institutional investment.
- Analysis of publicly disclosed investment sizes reveals a high concentration of small-scale (<\$30 million) investment sizes, demonstrating a clear gap between NbS investment need and institutional investor expectations (typically over \$25 million and no more than 5% of total value).
- Aggregation of multiple NbS projects provides an effective method for achieving investment scale and enabling institutional investment. Investment through funds and other aggregation vehicles enables larger scale ticket sizes across portfolios of NbS projects.
- Finance Earth reviewed 86 financial instruments (predominantly funds) that target investment into NbS, representing a total value of over \$12 billion committed capital. This demonstrates a significant increase on the total value of transacted investments across our dataset (approximately \$1.5 billion). The gulf between committed capital and transacted investments illustrates the challenges of deploying capital into NbS projects, which are often highly specialised and early stage in their development.

Measuring Impact

Financial returns are a single indicator of NbS performance, but non-financial performance indicators must also be considered when investing in NbS. These non-financial indicators, or 'impact' indicators, may include a range of environmental, social and economic outcomes.

Why measure impact?

Impact measurement is an important feature of best practice NbS investment. It allows project partners to assess and report on the quality, effectiveness and key risks associated with delivering NbS. These results provide assurance to investors and other stakeholders of the benefits and efficacy of the target NbS delivery. Additionally, impact measurement enables comparison between projects, and benchmarking of results over time, to inform future development and growth of NbS approaches.

Key Challenges for NbS Impact Measurement

Additionality, attribution and permanence

The complex relationships between ecosystems and human activities can create a multitude of possible outcomes. In order to attract funding and investment, NbS projects must be able to demonstrate additionality and attribution:

- Outcomes must be clearly attributed to specific NbS activities, and the extent to which the outcomes are attributed to a specific activity need to be measurable to evidence performance;
- Outcomes must not have been delivered had the activities not taken place, demonstrating additionality; and
- Outcomes must be generated on an ongoing basis, beyond initial project establishment, demonstrating permanence.

These factors should always be considered alongside unintended negative consequences, described in more detail .

These concepts can be very challenging and often expensive to measure given the various complexities and factors influencing the performance of NbS projects. This high cost and complexity of measuring and proving the link to the delivery of outcomes, and the lack of internationally recognised methodologies and standards, has been a significant barrier to scaling impact investment more broadly.

Project comparison and benchmarking

NbS projects can produce a wide range of impact outcomes. Comparing the impact of different NbS projects is challenging because nature has innumerable outputs that can be measured, and performance varies widely depending on the specific location and design of the project. Impact measurement is often necessarily bespoke to the project in question, and results may not be directly comparable to other similar projects. By clearly itemising impact across different outcomes, such as carbon emissions and species protection, project developers can create more directly comparable benchmarks against which to measure similar project outcomes.

Even within similar outcomes direct comparison can be challenging. For example, in the case of species protection, measuring the impact of protecting one species against the impact of protecting another is subjective to particular audiences and based on specific measurements. Equally, one carbon credit generated through rainforest restoration creates different impact than one carbon credit generated by mangrove restoration. This subjectivity in comparing NbS investments means that NbS impact evaluation is complex and nuanced, which in turn has led to difficulties in being able to comprehensively articulate and compare the risks, financial return and impact return associated with such investments at the level of robustness demanded by institutional investors.

Unintended consequences

While positive benefits of NbS can be achieved at a particular site, this does not prevent negative impacts being created elsewhere as an indirect result of the intervention. Historically, projects have also struggled to balance the environmental outcomes with the social impact (both positive and negative) that can be created in NbS investment. In the carbon market, protection of an area of rainforest from deforestation to reduce CO₂ emissions can push loggers to deforest new areas adjacent to the protected site where there is no such protection. Similarly, managed realignment to reduce the risks of coastal erosion and flooding can displace local communities, thereby impacting adjacent landscapes. Holistic assessment of NbS impact must monitor, disclose, and attempt to mitigate unintended consequences to ensure transparency over encompassing project outcomes.

Measuring NbS Impact – Metrics and Methodologies

A number of metrics and methodologies exist for measuring impact across a range of themes within the NbS market.

The 17 Sustainable Development Goals ('SDGs') provide a common language between stakeholders to understand the target impact of NbS projects. While tools exist for measuring performance against SDGs, metrics and methodologies for measuring targeted performance indicators are in the early stages of development and are often too broad to be practical for effective comparison across different projects. Additionally, enforcement and verification of SDG target measurements is poorly resourced, making it difficult to assess the validity of claims.

Sector-specific metrics and methodologies have been developed to measure and assess the positive impacts of NbS projects in delivering particular outcomes, such as carbon verification standards for measuring CO₂ emissions reductions and sequestration. In the case of carbon, the relevant metrics enable comparison across different projects regardless of ecosystem type, location or project size.

Carbon is only one of myriad potential ecosystem impacts. Far fewer recognised metrics and methodologies exist for other NbS impacts, such as those related to biodiversity and community wellbeing. This is likely

due to the highly nuanced factors affecting project outcomes, including specific location, habitat type and target impacts of NbS interventions, and the wide range of possible results. Lack of sufficient scientific evidence or aligned scientific opinion may also pose a barrier to the creation of and adherence to effective metrics and methodologies.

At a holistic level, there is no existing metric or methodology available to support direct comparison between NbS projects, creating ambiguity over relative and absolute NbS impact quality. IUCN launched its Global Standard for NbS in July 2020 to align best practice NbS development at a global scale. Further development and testing is required to ensure the Global Standard can appropriately compare NbS investments, however additional standards are needed to ensure that the expansive range of NbS activities can be assessed and compared.

Key Findings from NbS Impact Measurement

While direct comparison across wide-ranging NbS interventions faces several challenges, indicative mapping of NbS impact can support developers and investors in pursuing the growth and scale of the highest-quality NbS markets.

As described , certain NbS ecosystem themes demonstrate greater commercial maturity than others. The identified transactions highlight commercial sectors that depend on natural resources for income, such as forestry, agriculture and freshwater. While these sectors do utilise nature for delivering financial returns, they range in impact: from negative impact (such as monocrop forestry and intensive agriculture) to neutral or positive impact (such as continuous cover forestry or regenerative agriculture). Emerging business models within these sectors reveal new mechanisms for delivering positive impact results but are at an earlier stage of commercial maturity.

Emerging NbS themes, such as peatland restoration, species protection and marine/coastal projects, are at an earlier stage of commercial maturity but can potentially provide significant positive outcomes for nature and communities. These business models require further development, expansion and replication to achieve a level of commercial maturity required to attract investment at scale.

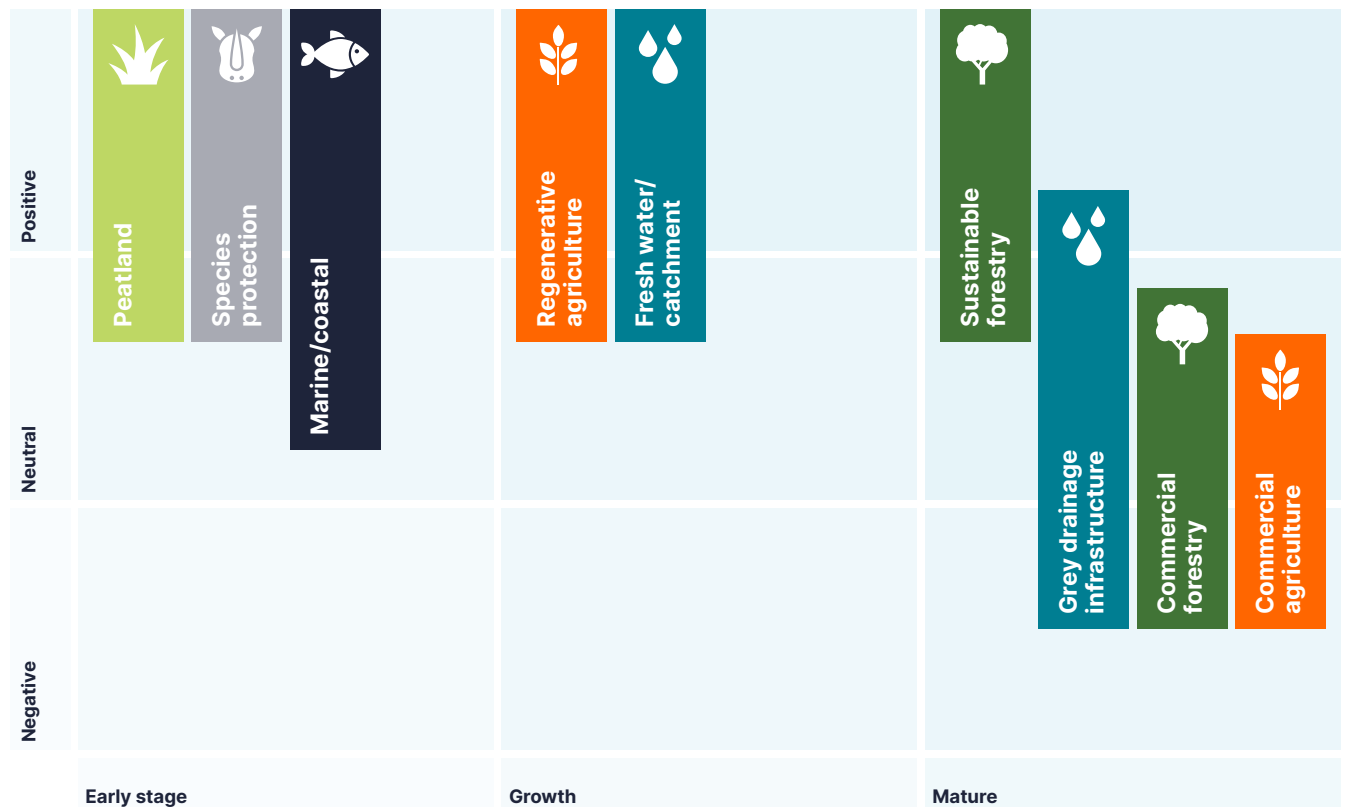


Figure 14 Illustrative analysis of NbS impact across sector themes

Key Insights

- Measuring NbS impact is important for informing decision-making at project development, investment, and policy levels.
- NbS impact is challenging to measure due to complexity and lack of standards to accurately compare outcomes from NbS interventions across different locations, habitat types and designs. As a result, there is currently significant ambiguity within the market around assessment of the quality and impact (including negative impacts) of different NbS.
- NbS can create unintended consequences, leading to negative impacts being realised adjacent to the project site as a result of the intervention being delivered, hence the need for holistic and independent impact assessments.
- A series of common metrics and definitions for engaging in discussions about impact is required to ensure the delivery of high-quality, consistent NbS projects. The SDGs provide a well-recognised set of measures and frameworks against which to measure impact, but are not equipped to capture the nuanced outcomes that nature can produce through NbS delivery.
- Development of specific metrics, methodologies and standards that are capable of addressing the multiple impact outcomes across a wide range of NbS interventions is required to enable comparative assessment between NbS projects.

Summary Findings and Conclusions

NbS Market Overview

This review sought to build an understanding of the current NbS investment market through analysing completed NbS transactions and operational investment products. The process has demonstrated the high level of ambiguity within the market around the definition of NbS: projects often land on a spectrum of impact where additionality, attribution, permanence and unintended consequences are difficult to quantify and independently validate. There are, however, a rapidly growing number of completed transactions across a range of NbS themes that appear to deliver high-quality, measurable impact and often commercial, risk-adjusted returns.

Typical NbS deal sizes are small in scale (\$30m average transaction size, based on the identified dataset) leading to an increasing number of funds and aggregators that are helping to create pathways for investment into NbS.

Several NbS sub-sectors exist with each theme at a different stage of commercial development. The most developed sectors are closely linked to major commodity markets, which tend to be larger-scale and attract significant volumes of investment. It is, however, worth noting that while these sectors provide scale and currently represent the most mature forms of NbS from an investment perspective, their range of impact is very broad with some examples identified having material negative impact and unintended damaging consequences.

The potential risks to outcomes are exacerbated due to the complexities of impact measurement and reporting frameworks, which are typically led by the fund managers and developers, creating a plethora of approaches. This results in a complex and often ambiguous landscape for institutional investors to navigate to assess relative levels of impact and quality. These issues highlight the importance and need for common, cross-cutting definitions and approaches to measuring and validating impact from NbS investment. This should be underpinned

by transparent reporting (of successes and, equally importantly, failures) and accountability of market participants to validation of project outcomes.

Despite the complexities and risks, the NbS market does offer an increasing array of investment opportunities enabling investors to directly and positively impact nature and society. Furthermore, many of the underlying opportunities have attractive investment characteristics providing non-correlated and often inflation-proofed return profiles through asset-backed activities.

Institutional investors are well placed to help accelerate, and benefit from the development of the NbS market and we have outlined the key insights and learnings that have been identified through this market review below.

Summary Findings

Defining and identifying NbS

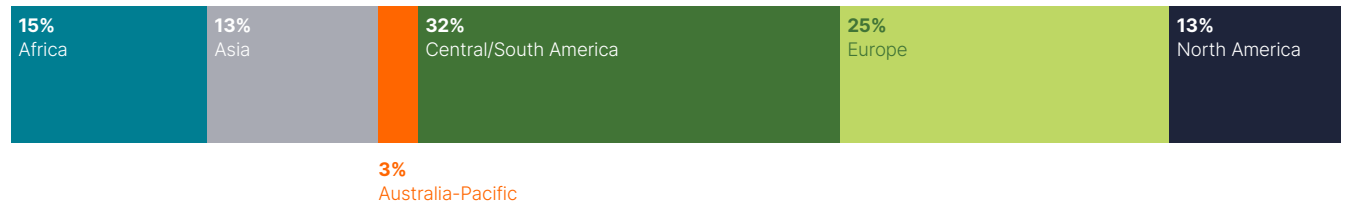
- While there are many definitions of NbS in circulation, our review identified the IUCN definition as the most appropriate means of consistently assessing NbS across different geographies, ecosystems and target outcomes. Aligning around a single definition helps to distinguish between NbS and non-NbS investments and prevents the bleeding of boundaries into adjacent and less impactful sectors. If the definition of NbS is left to individual interpretation, there is risk of eroding the sector and may lead to claims of 'greenwashing' activities.

Overview of NbS market trends and emerging opportunities

Geography and ecosystem types

- A review of 88 transactions revealed that investment into NbS is happening across the globe. Within the dataset used for this report Central/South America and Europe lead the global market by volume of NbS investments, each representing over a quarter of NbS transactions identified. Asia leads the global market by value, with 38% of the total identified investment value.

Use of investment (% of projects identified in the region)



Source of investment (% of projects receiving investment from the region)



Figure 15 Analysis of investment origin and application; more than 100% because many projects receive investment from more than one regional source.

- While the majority of investment capital originates from Europe and there is a high number of European transactions, the transaction values are low relative to other regions. A significant amount of European investment is being delivered into projects in the Americas, Asia and Africa, which could suggest that there is insufficient pipeline in Europe, or that the available pipeline does not meet investor target criteria. This indicates there is significant opportunity to support the creation of investable NbS pipelines in a European context, where there is strong investor appetite but currently lack of sizable deals.
- The most developed NbS sectors are linked to well-established commodity markets such as agriculture, forestry and freshwater/catchments, and currently receive the largest share of investment globally, representing 98% of the total value of investments identified. However, the level of quality and extent of impact in these investments are difficult to assess, with selective reporting from which negative impacts and unintended consequences are often excluded.
- Emerging NbS markets, such as marine/coastal, peatland and species protection, are rapidly growing their share of both deal volumes and investment value. While these opportunities are in the early stages of commercial maturity, they provide significant potential for delivering high-quality outcomes and impact.



Total volume (# projects identified)



Total value (\$m committed)



Figure 16 Analysis of global NbS investment themes – share of total number and value of investments reviewed

Understanding NbS business models

- A significant share of projects reviewed for this report adopt more than one business model, utilising ‘stacking’ of revenue streams to generate returns. The most commonly stacked ecosystem service identified was carbon offset credits, predominantly sold through the voluntary carbon market, being an additional revenue stream to forestry projects typically focussed on traditional timber revenues. Carbon credit sales through voluntary carbon markets provide a rapidly growing revenue stream for NbS projects across a range of different ecosystems, especially if other (non-forestry related) forms of carbon capture and storage can be accredited and verified. Additionally, although carbon sales were typically seen as a minority income in the revenue stack, several examples of new and close-to-market projects were identified that were seeking to generate the majority of income through carbon sales, demonstrating the growing significance of carbon income in NbS business models.
- Many of the transactions identified where investor returns were based on cost savings models were underpinned by creditworthy buyers and beneficiaries such as utilities and multi-national corporations using NbS to optimise operations. These business models are therefore capable of attracting significant investment. Cost savings models comprise a smaller proportion of the overall NbS market, likely due to the location- or outcome-specific nature of each project, but show significant potential to be scaled and/or aggregated given the credit worthiness of the counterparties in these projects.

opportunities for institutional investors, and therefore only projects that have received private, repayable investment have been considered. Of the transactions reviewed for this report, 60% of NbS projects received investment from institutional investors.

- Blended finance, the use of grant funding to mitigate specific investment risks and mobilise the flow of private capital into NbS, was used in 48% of the transactions reviewed. This demonstrates the need for strong multi-sector partnerships to enable investment into many NbS transactions, and the key role for strategic use of grant and philanthropic capital to establish NbS investment models.
- A range of financial instruments are used to invest in NbS globally. The most common instrument is through specialised NbS funds that provide the optimum investment type (whether debt, equity or a combination) for the selected NbS pipeline. Bonds, EIB mechanisms and commercial or concessionary loans are also used to fund the upfront and ongoing costs of NbS.
- Details of investment terms are often not disclosed for NbS transactions. Based on available information, NbS transactions are typically sub-scale for institutional investment (an average transaction size of \$30 million, \$9.3 million median, for NbS compared to average global private equity transactions of \$157 million). Fund managers have been known to experience significant challenges in raising first-time funds as a result of institutional investor limitations around minimum investment sizes and maximum concentration within single funds. In certain cases, strategic aggregation can be used to overcome barriers of investment scale for institutional investors, although this relies on availability of sufficient, suitable pipeline for creating aggregated portfolios.

Requirements for enabling investment into NbS

Learning from precedent NbS investment structures

- A range of investor types are supporting delivery of investment into NbS. This report focusses on identifying

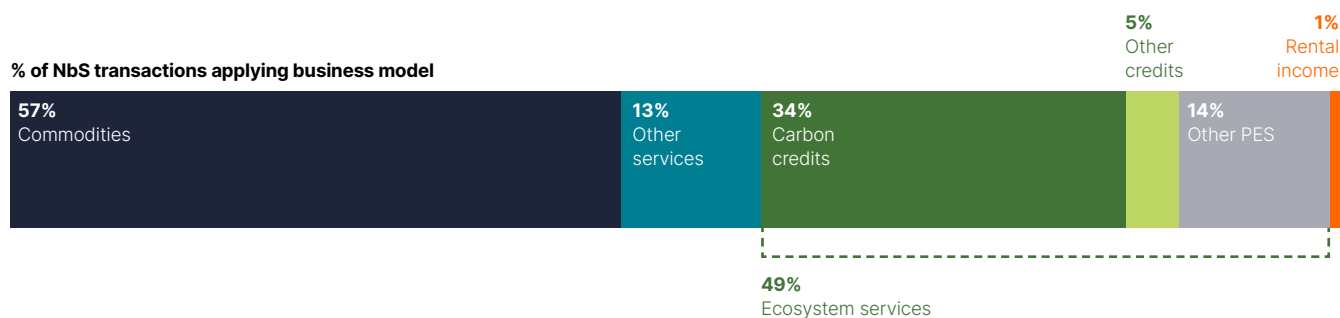


Figure 17 Analysis of NbS business models – representative share of sales models, more than 100% due to multiple revenues being stacked within project structures

% of NbS transactions disclosing returns



Figure 18 Analysis of NbS expected returns - share of transactions identified disclosing return expectations

- Analysis of expected returns revealed only five transactions that disclose accurate return information, with returns ranging from 2-12% (depending on investment type and after blending). Qualitative analysis demonstrates that the majority of transactions reviewed for this report are targeting market-rate returns. However, blended finance is used in many cases to achieve this level of return.
- Alongside financial returns, investing in NbS can potentially support investors in achieving their net zero commitments by agreeing a portion of the return in the form of verified carbon credits. By investing upfront in these types of projects, investors could reduce the risk of meeting their net zero targets and potentially achieve a cost saving against future increases in carbon prices. However, accounting of benefits should be managed carefully to avoid double-counting between financial and in-kind returns, and to ensure that outcomes are appropriately attributed to the initial investment. It should also be noted that NbS should only form part of a net zero strategy, which should be underpinned by a robust carbon abatement strategy, using NbS to offset and neutralise unavoidable emissions only.
- While investors will focus on managing the financial risks of investing in this new asset class, it is important for investors to seek out high-quality projects to mitigate reputational risks associated with claims of ‘greenwashing’ or accidentally backing projects that have unintended negative consequences.

Barriers to investing in NbS

Pipeline development

- A review of NbS investors revealed 86 active funds and financial instruments representing a total combined value of \$12 billion committed capital for NbS investment. The amount of committed capital far outstrips the invested amount identified through a broad market review, which revealed only \$1.5 billion

of private, repayable investment being delivered into NbS. This reveals a significant gap between supply of capital and investment readiness of NbS projects.

- One of the key barriers to deploying capital into NbS is the available investment pipeline. The majority of projects are too early-stage in their commercial maturity or sub-scale for institutional investment. These NbS projects require further project development, investment readiness support and/or strategic aggregation to achieve scale.
- Lack of capacity and investment expertise within the project developer community is an additional barrier to developing the volume and scale of NbS to effectively deliver investment. Specialist intermediaries play an important role in developing financial expertise within the project developer universe but require additional financial and resource support to accelerate capacity building activities.

Land ownership and management

- Access to ownership or control of land or sea areas is required for developing NbS. Land ownership provides the greatest amount of control but can be costly and difficult to procure, undermining NbS investment cases. Other means of acquiring control of target areas include through contractual relationships with users/beneficiaries or through legal designations for conservation outcomes, where national legislation allows.

Effective impact measurement

- Measuring NbS impact is important for informing decision-making at project development, investment, and policy levels. Impact measurement is challenging to measure due to the complexity of accurately comparing outcomes from interventions across different locations, habitat types and designs. Furthermore, projects must demonstrate attribution, additionality and permanence to be considered to deliver impact outcomes.

- Importantly, NbS can create unintended consequences, leading to negative impacts being realised through displacement of activities as a result of the intervention being delivered.
- There are limited common definitions, metrics and methodologies for sharing information regarding NbS investment. This presents a key barrier to informing future decision-making regarding developing and scaling investment. The Taskforce for Nature-related Financial Disclosures (TNFD) and Taskforce for Climate-related Financial Disclosures (TCFD) aim to support investors in understanding the impacts of their investments on nature and climate. Both TNFD and TCFD offer an important step for investors to build internal capacity and shared understanding of these issues and could be material drivers for creating allocations for nature- and climate-positive investment activities. However, these initiatives do not create assurance around NbS quality at a project level and it is important that investors engage and build on these taskforces to create international standards and an extensive suite of common metrics appropriate for the NbS markets.

Efficient market infrastructure and governance

- One of the identified issues with early investment market development in NbS is the disproportionate size of transaction/due diligence costs, especially in smaller transactions and with novel structures. In researching this report, there is a clear absence of the transaction databases and market research platforms that are widely available and accessible for traditional investment markets. This will act as a barrier to market development, by hampering the sharing of risk and return information and forcing new potential investors to spend significant resources on upskilling themselves ahead of entering the market.
- Furthermore, there is evidently sparse ongoing reporting of financial and impact information from completed transactions. The conventional sector reports, analytical coverage, transactions news and market analysis is not produced for the NbS investment market at present which makes the track records of transactions, financial intermediaries (including brokers and investment partners), funds and fund managers opaque and could prevent investors from entering this space until there is more transparency and data to make informed decisions.

Awareness of and openness to alternative approaches and structures

- The dataset analysed for this report reveals the significant number of NbS transactions that apply blended finance structures, utilising both private repayable capital alongside public and philanthropic funding. While blended finance has mobilised investment into areas that were not previously investment-ready, it has led to many institutional investors excluding these market opportunities entirely as they see the application of blended finance as sufficient evidence alone that they are too early stage for investment. This issue is often exacerbated as many investors do not have experience with or practical understanding of how blended and aligned structures operate, creating concerns it can unintentionally obscure the true risk and return dynamics of some NbS sectors. This has resulted in some institutional scale investors being reluctant to work with early movers until these risks are made clearer.

Roles and responsibilities of key actors in developing investment into NbS

- Well-resourced project developers with conservation expertise and financial literacy are required to develop high-quality, investment-ready pipelines of NbS projects. Alongside this, the wider market must acknowledge and support the key roles being played by NGOs as impact-maximising (rather than profit-maximising) project sponsors and developers.
- Specialist fund management is important for ensuring that both financial returns and impact outcomes can be delivered. There are relatively few active NbS fund managers with the requisite expertise; those that do operate across NbS do not always have in-country presence where NbS investment is being delivered. Investing in the development of high-quality fund managers and origination partners is therefore key to unlocking NbS investment pipelines.
- Governments and public agencies play a key role in creating enabling policy for catalysing and sustaining new NbS markets, and establishing appropriate regulatory and enforcement practices to ensure high-quality.

- Cross-sector partnerships are essential for convening multiple stakeholders for catalysing the development and delivery of NbS projects. Given the scale of non-monetisable public goods that arise from NbS projects, more public-private and public-private-philanthropic partnerships should be encouraged and developed to ensure that maximum impact can be delivered alongside appropriate financial returns.
- Private investors, public sector funders and philanthropic donors should collaborate further through blended and aligned investment models, which requires grant funders and donors to accept that NbS projects need to generate a financial return in order to attract investment. Equally, private investors should get comfortable balancing the need for fair financial returns and positive impact to avoid profiteering and erosion of systemic impacts.
- Independent verification of impact outcomes is important for ensuring standards of quality. Verification provides assurance to investors and other key stakeholders. Certification or accreditation models, hosted by qualified institutions, can provide a useful tool for enabling consistent assessment across a range of NbS projects, but must be managed carefully to avoid conflicts of interest between certification income sources and impact objectives.

Recommended Actions

Engaging with the NbS Market to Deliver Investment

This market review of precedent NbS transactions revealed a series of clear opportunities for institutional investors to engage with the NbS market. Through the market review several options have been identified that could be actioned by institutional investors to accelerate the development of the NbS market. These recommended actions for institutional investors and policymakers to consider have been outlined below.

Developing NbS investment strategies

Investors could consider:

Establishing NbS investment strategy and defining target objectives

- Before engaging with the NbS market, investors should have a clear strategy for delivering target investment objectives that set parameters for financial returns, nature- and climate-related outcomes, risk appetite and willingness to accept trade-offs. It is important that investors share these strategies with market participants so that developers can prioritise opportunities. For example, investors can choose to target certain natural capital themes, geographies, or impact outcomes (while recognising that natural ecosystems are complex and interconnected). A clear strategy will help investors to develop understanding of the target NbS market and focus efforts for delivering appropriate investment into selected projects. This will enable the development of a higher-quality and more impactful NbS market, supported by well-informed investors capable of distinguishing relative levels of project quality and impact.
- Investors could identify appropriate links for NbS within net zero strategies; while net zero strategies should prioritise abatement, identifying and explicitly linking the role for NbS within net zero plans will help to build organisational momentum and awareness of the roles NbS can play.

Allocating resource for NbS investment

- Based on a clearly defined strategy, and following engagement with project developers, investors could consider the most effective means of allocating capital to NbS investments. This may involve ringfencing new pools of capital for NbS or determining portions of existing capital that can be allocated to NbS (for example, by allocating a portion of wider agriculture investment to regenerative agriculture). These dedicated allocations should have lower investment size thresholds to facilitate investment into smaller-scale vehicles to support maturing but sub-scale NbS asset classes.

Identifying opportunities and building pipeline

Investors could consider:

Building working partnerships and networks between investors, project developers and other key actors

- Investors should engage with project developers and intermediaries active in target NbS markets to understand funding and resource needs alongside key considerations for delivering investment into target sectors and geographies. Engagement with project developers and intermediaries will support investors in refining their strategy, determining the appropriate type and quantum of capital to allocate to the target NbS investments, while working with developers and intermediaries to develop investment pipeline.
- It is imperative that project developers and intermediaries do not remain siloed within particular areas of project delivery and learn from investors to understand how to develop attractive investment propositions. Investors should actively support, and where appropriate invest in, project developers to collaboratively develop NbS pipelines, while socialising learnings and helping developers to understand investor requirements. Where investors do engage (both successfully and unsuccessfully) these experiences should be showcased to the wider investment community so lessons can be shared and learned from.

Implementing 'pathfinder' projects

Investors could consider:

Collaborating with project delivery partners to develop blended finance and other innovative solutions for NbS development

- Many high-impact NbS projects require additional project development support to achieve investment-readiness, as well as post-investment support for ensuring long-term performance. In collaboration with project developers, investors should engage with public sector funders and philanthropic donors to convene the required capital and resource support to enable effective NbS delivery. Developing blended finance solutions could enable the acceleration, growth and scale of the most impactful NbS markets. Many institutional investors already have access to in-house assets that can be leveraged for this purpose, such as foundations and other charitable activities, extensive CSR budgets, wealth management and philanthropic advisory units. These assets could be more strategically aligned to unlock and overcome some of the key barriers identified in this report.
- Skills shortages and lack of experience with NbS assets is a major barrier for investors seeking to engage in the NbS market. While third-party specialists will be required, investors should seek to develop in-house expertise, through close collaboration with project delivery partners, to develop skills within their investment teams in order to effectively evaluate the nuanced and often complex array of NbS outcomes.
- Participation in innovative forms of finance, such as EIBs, provide emerging opportunities for investors to support high-impact NbS development by sharing the risks of project delivery with outcomes payers. Additionally, strategic aggregation vehicles offer a means of achieving investment scale transactions through delivering investment into portfolios of aligned NbS projects. Many institutional investors are ideally placed to develop (or contribute to the development of) the market infrastructure required to accelerate investment into the NbS market, with market-leading tools and technologies for traditional investment that could easily be adapted to deliver enabling tools and technologies for expediting NbS investment.

Developing Market Governance

The challenges faced in identifying and evaluating precedent NbS transactions for this report revealed a clear need for developing consistent, effective governance tools and activities to enable market actors to accelerate and scale investment into NbS.

Reporting and sharing market data and analysis

Investors could consider:

Encouraging accessible data sharing platforms to accelerate market development

- Information on precedent NbS transactions is highly disparate, often incomplete and occasionally inconsistent. Developing an accessible platform for NbS transaction data (or extending coverage of data platforms that already exist) will enable shared learnings within the investment community, highlight emerging investment sectors and models, encourage further market development and incentivise consistent reporting and data.
- There is limited ongoing coverage and analysis of projects, transactions, funds, and sectors compared with more traditional investment areas. It will be important to build capacity across institutional tools such as ratings agencies, analyst coverage, transaction news and performance monitoring. This will reduce barriers to investment associated with knowledge gaps and transaction costs as more investor due diligence can use existing data and analysis, enabling more activities to be conducted in-house. Investors should engage with ratings agencies and data providers to actively procure the type of information required to be able to invest in NbS, which will inform data/analysis outputs from these sources.

Developing standards of quality

Investors could consider:

Engaging with the scientific community to develop standards of quality for impact measurement

- Measuring NbS impact is important for informing decision-making at all levels but the complexity of measuring NbS impacts, along with the lack of standards to accurately compare outcomes, provides a barrier to effective impact measurement. Working with the scientific community to develop specific metrics, methodologies and international standards for NbS impact will ensure development of consistently high-quality NbS projects. Early engagement of institutional investors in this process will ensure that that measurement is proportionate, appropriate and cost-effective for investment projects.

Public Sector Leadership

Given NbS opportunities often exist at the intersection between public and private benefit, policymakers have a key role in helping to develop markets to monetise ecosystem services and help accelerate the development of the NbS market. Key recommended actions for policymakers to consider are outlined below.

Promoting policy and fiscal regimes that encourage investment into NbS

Policymakers could consider:

Implementing floor prices for key ecosystem services markets

- Voluntary carbon markets are growing rapidly, with prices and traded volumes increasing. However, forecasting pricing remains challenging. By providing floor prices, guarantees and hosting auctions for the sale of ecosystem services (such as carbon and nutrients), governments could enable and incentivise increased investment into these markets.

Allocating funds for development of investment-ready NbS projects

- Many NbS markets are in the early stages of their commercial development. Blended finance vehicles were used to deliver investment into 48% of the identified NbS transactions, highlighting the importance of first-loss capital to help crowd in private finance and prove NbS investment cases.

Strategic allocations of public funds explicitly for NbS blended vehicles would help to crowd in more investors into the market.

- Strategic use of public funding to develop NbS investment-readiness could unlock significant investment for the benefit of nature and communities. For example, the UK Government's Natural Environment Investment Readiness Fund ('NEIRF') is currently in its first year of applications and aims to fund technical assistance for NbS project development. Continuation of the NEIRF programme and delivery of new, increased sources of funding for developing investment-readiness – in the UK and internationally – could catalyse a broad array of new market infrastructure and business models to enable NbS investment at scale.

Allocating land/sea assets for development of investment-ready NbS projects

- The public sector is one of the largest land and seabed owners and controllers, and is therefore a significant stakeholder in opening up these assets for delivering NbS projects. In order for investment to achieve scale, investment value and volume needs to be drastically increased to build common models for NbS projects (similar business or revenue models). Allowing access to the extensive land and sea asset holdings across central, local and quasi-public sector bodies would significantly improve the supply of potentially investable landscapes and seascapes to project developers.
- Additionally, public sector decision-makers could consider implementing policy that enables and encourages the acquisition of land which explicitly requires the promotion of NbS approaches.
- As well as opening up access to land and sea assets, the public sector should seek to develop NbS investment opportunities to create sufficient transaction history to inform and develop private investment. In the UK, for example, there are near-term, material opportunities for public landowners to develop large-scale NbS projects themselves, involving revenue streams like biodiversity net gain, and carbon/net zero projects aligned to the UK Government's net zero statements and local governments' climate emergency pledges.

Demonstrating global leadership

Policymakers could consider:

Implementing a clear strategy for all carbon mitigation opportunities

- Ensuring that all carbon opportunities, including terrestrial (such as forestry and peatland) and marine (such as kelp and seagrass) habitats, are included within a nationally aligned strategy will enable future growth and maturation of carbon markets. Including these habitats within Nationally Defined Contributions ('NDCs'), which are currently relatively limited in scope, will support development of newer carbon markets, such as for 'blue' carbon from freshwater or marine habitats.

Sponsoring the creation of standards and verification codes for ecosystem services

- Independent verification of NbS outcomes is important for ensuring impact quality as well as underpinning revenue models such as ecosystem services. While some NbS sectors, such as the forest carbon market, have well-established and widely understood verification providers, others rely on bespoke verification models to validate NbS impact. Policymakers have a critical role in sponsoring the creation of verification codes for emerging ecosystem services and habitat types, such as nutrient removal, natural flood mitigation and blue carbon.

Establishing cross-sectoral working groups

Policymakers could consider:

Sponsoring the creation of market platforms and centres of excellence to facilitate market development

- Information on precedent NbS transactions is highly disparate and often incomplete. Sponsoring the creation of an accessible platform for NbS transaction data will enable shared learnings within the investment community and market practitioners to highlight emerging investment sectors and models, to encourage further market development.
- Additionally, the creation of 'centres of excellence' for sharing resources and demonstrating exemplar NbS development will facilitate best practice delivery and enable closer collaboration between investors, project developers, policy makers and scientific communities.

About the Project Partners



The Green Purposes Company ("GPC") is a not-for-profit company limited by guarantee. It has one primary function: to protect the green purposes of the Green Investment Bank ("GIB"). It may also undertake supporting activities to promote the protection of the environment, should it choose to do so.

The GPC's current focus is solely on safeguarding the green mission of the GIB through its power as special shareholder in the GIB, and in maintaining a constructive relationship with GIB and its stakeholders.

The GPC has public accountability and an implied responsibility to be open in its core functions. The GPC scrutinises the operation of the five green purposes. The GPC wishes the GIB business model to succeed, grow and act as an exemplar.

James Curran, Trustees
Trevor Hutchings, Trustees
Tushita Ranchan, Trustees
Robin Teverson, Trustees
Peter Young, Trustees



Finance Earth is an environmental impact investment boutique, providing financial advisory and fund management services across the natural and built environment. Finance Earth helps to create projects – and the investment vehicles to fund them – that balance positive outcomes for nature, communities and investors.

Finance Earth works in partnership with project developers, government, businesses and enablers to create investable environmental and social projects. At the same time, Finance Earth works with a range of investors to structure financial products that can accelerate the protection and restoration of nature.

Finance Earth has the leading UK track record of designing combined environmental and social impact funds. The team currently manages over £50 million of blended social and environmental impact funds and has designed over £500 million of impact investment structures.

Finance Earth is a wholly employee-owned social enterprise, with 51% of profits being recycled in on-mission activities and investments.

James Mansfield, Managing Director
Richard Speak, Managing Director
Olivia Bennett, Senior Associate
Paveen Ghalay, Senior Analyst
Allan Benhamou, Analyst

Glossary

Term	Definition
Biodiversity credit	A tradeable permit that corresponds to the generation of one biodiversity unit, which can be purchased to mitigate equivalent biodiversity loss elsewhere.
Biodiversity net gain	An approach to development that requires developers to pay for biodiversity improvements at one site in order to mitigate biodiversity loss due to development, such that an overall increase in natural habitat and ecological features is achieved.
Blended finance	Use of catalytic capital from public or philanthropic sources to increase private sector investment in sustainable development.
Blue carbon	Verification of carbon credits from the storage and sequestration or avoided emissions from protecting and restoring marine and freshwater habitats.
Carbon credit	A tradeable permit that corresponds to emissions of 1 tonne of CO ₂ equivalent (tCO ₂ e) and can be purchased on voluntary or regulated carbon markets.
Centre of excellence	A shared facility or an entity that provides leadership, best practices, research, support and/or training for a focus area.
Commercial maturity	A project or market's capacity to generate and/or attract private capital for funding upfront costs and ongoing operations.
Commodity	Products that are sold and traded on local or international markets.
Community forest	A branch of forestry where the local community plays a significant role in forest management and land use decision making with the facilitating support of government and change agents.
Cost benefit	Achievement of reduced upfront or operational costs as a result of conducting specified activities.
Development finance institutions ('DFIs')	Specialised development banks or publicly funded subsidiaries established with the objective of supporting private sector development in developing countries.
Ecosystem	The complex of living organisms, their physical environment, and all their interrelationships within a particular geographic area.
Ecosystem services	The benefits that can be obtained from ecosystems, including provisioning, regulating, cultural and supporting services.
Environmental impact bond ('EIB')	An innovative financing model using a pay-for-success approach and a risk transferring mechanism to enable private investment for environmental projects, with repayment linked to agreed outcomes.
Environmental Land Management Scheme ('ELMS')	An upcoming UK Government policy that will pay farmers for work that enhances the environment, such as tree or hedge planting, river management to mitigate flooding, or creating or restoring habitats for wildlife.

First-loss capital	Socially- and environmentally-driven credit enhancement provided by an investor or grant-maker who agrees to bear first losses in an investment in order to catalyse the participation of co-investors that otherwise would not have entered the deal.
Greenwashing	Behaviour or activities that make people believe that an organisation or individual is doing more to protect the environment than it really is.
Impact	The outcomes for nature and societies created by undertaking target activities (such as delivery of NbS). Impact can be positive (for example, mitigating climate change) or negative (for example, displacing local communities).
Inflation-proof	An investment whose value increases based on the rate of inflation.
Institutional investors	A company or organisation that invests money on behalf of clients or members, such as hedge funds, mutual funds, and endowments.
Investment	The act of investing capital in projects or activities in return for repayment and profit. Investment utilises repayable capital, unlike non-repayable capital typically provided by grant and philanthropic funders.
Investment-ready	Capable of raising and supporting repayable investment.
Market rate returns	The rate of interest or return that is accepted by lenders and investors for sector-specific investments, adjusted to reflect the level of risk of the specific transaction.
Marine Protected Area ('MPA')	The protective management of natural marine and/or coastal areas according to pre-defined management objectives.
Mitigation payment	Payment made by an organisation or individual to compensate for the loss of habitat or biodiversity caused by the payer.
Nationally Defined Contributions ('NDCs')	Commitments made by each country that is a signatory of the Paris Climate Agreement to reduce national emissions and adapt to the impacts of climate change.
Net zero	Removal of an equivalent amount of greenhouse gas emissions as the amount emitted by a particular organisation or activity.
Outcomes payment mechanism	Investment mechanism where payments depend on project performance pre-defined outcomes or targets, transferring the risk of project delivery from the outcomes buyer to investors.
Payments for ecosystem services ('PES')	Incentive payments from a beneficiary/user of an ecosystem service to the provider of that service (in particular, those who preserve or maintain the ecosystem)
Philanthropic donation	Non-repayable funding seeking to achieve positive environmental and/or social outcomes.
Stacking	The use of multiple income streams to enable investment and deliver the optimum return to investors and outcomes for the project.
Sustainable Development Goals ('SDGs')	Set of targets adopted by the United Nations in 2015, intended to be achieved by 2030. SDGs comprises 17 interlinked goals, aimed at ending poverty and achieving sustainable development.

Disclaimer

This report has been commissioned by the Green Purposes Company Ltd, and represents the views of the authors:

Finance Earth

W106 Vox Studios, 1-46 Durham Street,
London SE11 5JH

www.finance.earth

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Appendix

Project methodology

In order to understand the current status and future potential of the NbS investment market, Finance Earth conducted a review and analysis of completed NbS transactions globally. This review aimed to identify key learnings from global NbS to source insights for developing the NbS investment market in the UK and Europe.

Objective-setting and definitions

A substantial volume of data on NbS is publicly available. To screen for relevant data and ensure a consistent approach, Finance Earth and GPC determined the criteria for transactions to be considered for analysis:

- Compliance with the IUCN's definition of NbS;
- Use of repayable finance for delivering project upfront and/or operational cost; and
- Publicly available and verifiable data.

The IUCN defines NbS as actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

Data mapping and analysis

Finance Earth undertook a review of relevant literature and additional desktop research to compile a database of over 200 unique transactions. These transactions were assessed against the project criteria; many projects were filtered out based on non-compliance with the agreed criteria, resulting in 88 transactions that were selected for analysis.

The selected dataset was analysed to identify key themes and learnings from past transactions, with a view to understanding key insights and opportunities for institutional investors to support this nascent market

Stakeholder engagement and data validation

Based on the results of the data gathering exercise and initial analysis, Finance Earth selected key stakeholders representing a range of NbS investments to engage and conduct in-depth interviews. The engagement exercise aimed to build upon existing available data and validate initial assumptions across a range of NbS themes, transactions and investment products to further refine the results of analysis and determine key recommendations for investors and policymakers.

Endnotes

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hello@finance.earth

