



Investing in Nature

Private finance
for nature-based
resilience



The Nature Conservancy (TNC) is a global environmental nonprofit working to create a world where people and nature can thrive. Founded in the United States in 1951, it has grown to become one of the most effective and wide-reaching environmental organizations in the world. Thanks to more than a million members and the dedicated efforts of our diverse staff and more than 400 scientists, we impact conservation in 79 countries and territories across six continents. To learn more, visit www.nature.org

The Nature Conservancy is fortunate to have the support of visionary people and organizations, whose generosity allows us to pursue our mission. We are grateful to the Enterprise Rent-A-Car Foundation for supporting our work to find water solutions that work for rivers and the communities that depend on them.

NatureVest, TNC's conservation investing unit, sources private investment capital to help fund efforts to protect land and water, tackle climate change, provide food and water sustainably and build healthy cities. TNC launched its impact capital strategy in 2010 and launched NatureVest in 2014 as a concerted effort to change the way investors value natural capital. To date, NatureVest has closed \$720 million in investments in nature.

To learn more, visit: www.nature.org/naturevest

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Foreword

Momentum is a curious force. It's invisible to the eye, but we can see a body in motion. Scientifically, we can measure it with precision, but we can also feel it, physically and psychologically. Momentum is both cold, hard fact and thrilling – or sometimes chilling – emotion.

Most discussions about the state of nature start with appropriately dire framing: the climate has changed, soil and water have been degraded, biodiversity has been lost. These are not new facts, but they deserve repetition, because the momentum of decline continues at global proportions. And we have to remember that every ounce of effort today contributes to a better outcome in the future.

We know it's possible to change course entirely. The Nature Conservancy's own science reveals that if we make the right moves within the next decade, we can eventually get to a world where people and nature thrive together. This will take a tremendous amount of work, but like starting up a flywheel, actors of every type are pushing hard on top of the progress made so far, and the acceleration is something we can feel.

Investing in Nature: Private Finance for Nature-based Resilience aims to capture qualitative measurement of the positive momentum being built with market-based solutions to protect and improve natural capital. The points of view collected from investors, deal makers, intermediaries and governments reveal what is working well, and in some cases, not so well.

For example, a perennial issue is the tug of war between investor appetite and investable deals. Investments are either too big or too small, too risky or not rewarding enough. What is clear from this report, however, is that investments in nature are seen as both a necessity and an opportunity. Whether an investor's motivation is profit, resilience, compliance or mission, natural capital will be increasingly factored into investment decisions.

This is a positive trajectory that we can accelerate if we all lean into it. For those who set public policy, develop deals and raise capital, we need to remember that our actions lead to change in investor behaviors and this report offers

several recommendations for progress. Investors and asset owners, on the other hand, have their own key to unlocking the potential energy of their capital: securing a competitive advantage.

Some investors are ahead of the curve: They recognize that their portfolios have always been at risk from the impacts of climate change, pollution, loss of nutrients, loss of species. They know that science will continue to provide better understanding of those risks. They see that the best deals will be able to evaluate and quantify not just *impacts* on nature, but the *benefits* of nature. They learn to analyze these relatively new factors. They ask questions... a lot of questions.

These are lessons for all manner of investors seeking a competitive advantage. Those who ignore them are in a race to the bottom, where climate change and loss of nature result in substantial economic losses. However, by aligning competitive incentives and the greater good, recognizing the inherent value and mitigation nature provides, investors and their partners in this fight can leverage tremendous financial assets to secure a livable future. Nature itself and our global community need us to do exactly that.



**Charlotte Kaiser, Managing Director, NatureVest
The Nature Conservancy**





Executive
Summary

Investing in Nature:
Private finance for nature-based resilience

A growing number of private sector investors are factoring environmental concerns into their investment decisions, in response to stakeholder pressure, government guidance and regulatory changes.

To date, the focus has largely been on the greenhouse gas emissions blamed for climate change but, increasingly, attention is turning to natural assets such as water, soil, air and living organisms from which humans derive a wide range of goods and services.

The critical importance of these assets – collectively known as natural capital – is not captured by existing economic indicators although government-backed studies are underway to address this challenge, aided by improvements in data collection and accounting techniques.

Companies' dependency on natural capital is now a factor in the investment decisions of many mainstream asset owners, such as pension funds and insurance companies, as well as specialist 'impact' investors.

The Nature Conservancy joined forces with *Environmental Finance* to better understand what these investors are looking for, what obstacles they face and what can be done to help them scale up investments in projects that protect or enhance natural capital.

We conducted a global survey of asset owners, asset managers and financial intermediaries (including banks, investment advisors,

consultancies, government agencies and NGOs) and attracted responses from 168 institutions. This was complemented by 23 one-to-one interviews.

We found that many private investors choose to invest in natural capital to reduce risk, boost the resilience of their portfolios and/or enhance their reputation. Investing in natural capital can also add valuable diversity to their portfolios and can be profitable, given the right opportunities.

The close interconnections between the global challenges of climate change and the rapid decline in natural resources (freshwater, oceans, soil and biodiversity) are becoming increasingly well understood by the investment community.

Indeed, 'resilience against climate change' was the most commonly cited driver of current and future investments in natural capital. This is in line with studies showing that nature-based approaches to climate change adaptation can effectively bring down the total costs of resilience investments.

Among the largest investors, however, 'reputation' was considered even more important. This reflects societal changes – also noted in other studies – triggered by science-based warnings about the deteriorating state of the natural environment and amplified by public figures such as the Pope, television presenter David Attenborough and teenage activist Greta Thunberg.

To date, forestry has received the most attention among nature-based solutions to climate change, as deforestation is estimated to be responsible

for about 20 percent of global greenhouse gas emissions. Increasingly, however, investors are turning their attention to other nature-based investments, such as sustainable agriculture, peatland and the oceans.

Over the next five years, nature-based projects to improve the quality and supply of water are expected to see the greatest increase in investment, albeit from a relatively low level.

A wide range of approaches are available to investors seeking to make investments in natural capital, including purchases of real assets such as forests or agricultural land, private and listed equity, and mitigation offsets for water, biodiversity and greenhouse gas emissions.

Green bonds are among the most popular instruments for making sustainable investments but few of them help finance the conservation of natural capital and several have attracted accusations of 'greenwashing'. However, this market is proving increasingly attractive to large mainstream investors and new standards are being developed to give the market clearer visibility about which of these bonds support nature-based projects.

Other innovative debt instruments used to channel private finance to natural capital projects include sustainability-linked loans, in which the interest paid depends on the environmental performance of the borrower.

Blended finance funds, in which private institutions invest alongside public finance institutions and/or philanthropic organisations, are another popular investment option. The main attraction is the de-risking provided by the public or philanthropic capital. Few of these funds exceed \$100 million however. Larger private investors mostly prefer the bond market, where transactions of \$300 million - \$1 billion are common, offering greater liquidity and relatively lower transaction costs.

The survey responses confirmed that larger investment vehicles are required if large mainstream investors are to be persuaded to allocate more capital to nature-based projects.

Unfortunately, such projects do not lend themselves to 'commodification'. Each investment needs to be tailor-made for specific local conditions, and they tend to be small-scale interventions in the landscape. They can also be riskier than most conventional investments and take longer to set up.

Long-term profit opportunities were identified as a major driver of current and future investments in natural capital.

Most respondents said they expect their green or sustainable investments to yield comparable returns to their traditional investments. However, a greater percentage of the large institutions said they expect their green investments to yield higher returns, to compensate for the greater perceived risk.

Among smaller investors, a higher percentage are prepared to accept lower returns, provided the investments have strong evidence of environmental impact.

The broader sustainable investment market is expanding rapidly, driven largely by initiatives stemming, directly or indirectly, from the Paris Agreement on climate change and the UN's Sustainable Development Goals (SDGs). Natural capital, or 'conservation' finance, represents a very small slice of this market but the outlook is promising as the survey revealed a clear consensus, across a wide variety of investors, that investments in natural capital should increase.

While neither of these initiatives impose any obligations on individual companies or investors, they have given rise to a host of industry and government-backed 'best practice' principles that are changing corporate behaviour and investment decisions. Several of these urge financial institutions to pay closer attention to the sustainable use of natural resources.

One of the most influential initiatives has been the Task Force on Climate-related Financial Disclosures (TCFD), set up by the G20's Financial Stability Board to provide investors, lenders and insurers with consistent climate-related financial risk disclosures.

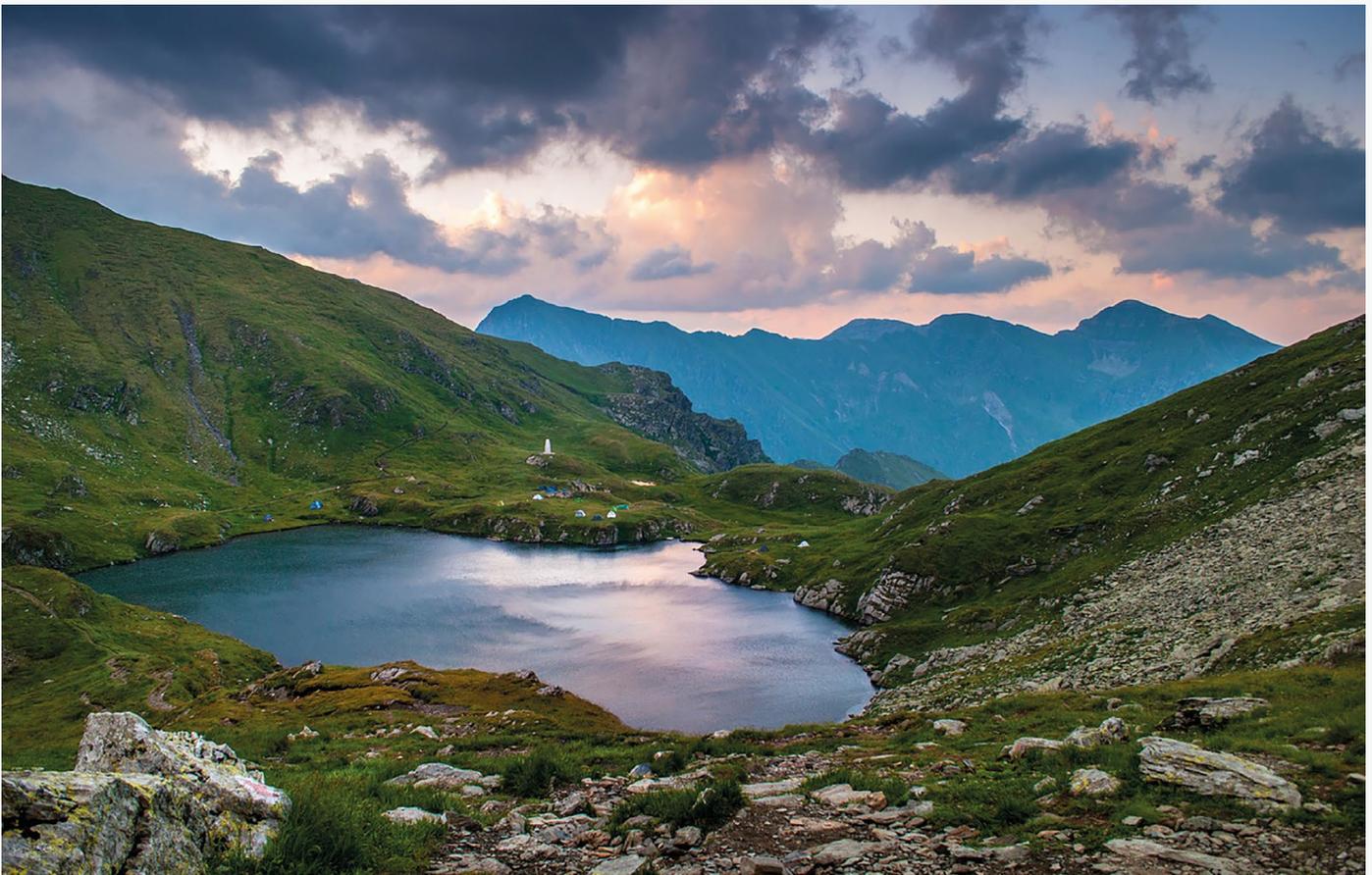
More than half of our survey respondents said the TCFD recommendations and related initiatives had already triggered a change in their investment policies or was expected to do so in future. The figure was even higher for the largest asset managers and asset owners.

This suggests a similar Task Force on Nature-related Financial Disclosures (TNFD) – already under discussion by several central banks and others – could have a significant impact on investments in nature-based projects.

In light of our survey findings and other studies, we believe the following recommendations could accelerate private sector investment in natural capital.

Table ES.1 – Summary recommendations to scale up private investments in nature-based resilience

Actors	Recommended actions
Governments	<ul style="list-style-type: none"> Recognise the importance of nature-based solutions in combatting climate change Encourage companies to examine and disclose their dependencies on natural capital Promote the adoption of natural capital accounting Support moves to set up a Task Force on Nature-related Financial Disclosures Adopt regulatory measures for mandatory investment in natural capital Provide catalytic public funds to de-risk private investments
Project sponsors and companies	<ul style="list-style-type: none"> Prepare natural capital projects with the explicit objective to attract private investment Incorporate natural capital into mainstream investment strategies
Intermediaries (banks, NGOs, consultancies, universities, etc.)	<ul style="list-style-type: none"> Help develop standards and principles that support natural capital investments Support development of investable natural capital project pipelines Work with natural capital project developers to design larger investment vehicles Help mobilise blended finance resources
Investors	<ul style="list-style-type: none"> Encourage investee companies to disclose their dependencies on natural capital Include risks and opportunities associated with natural capital in asset allocation decisions Work with debt issuers and bodies such as the Climate Bonds Initiative to boost issuance of bonds devoted to natural capital projects



1. Introduction

A growing number of private investors understand the value that natural capital provides to our economies and are actively looking for investment opportunities in this area. The Nature Conservancy and *Environmental Finance* have joined forces to better understand which institutions are making these investments, what they are looking for, and what needs to be done to ensure that ‘the market’ provides the opportunities they seek.

This report is based on a global survey of asset owners, asset managers and financial intermediaries (including banks, investment advisors, consultancies and NGOs) to identify private investors’ interest in natural capital, their motivations for investing and the barriers that are preventing them from doing more. In total, 168 individual respondents completed the survey. This was complemented by 23 interviews to provide greater depth: quotes from these interviews are highlighted throughout the report.

We attracted responses from a wide range of asset owners and asset managers, ranging from specialist impact investors managing less than \$100 million to major pension funds. Of those who disclosed the size of their assets, 17 manage or own more than \$4 billion. Annex B describes the survey and the type of respondents. This was complemented by a review of the extensive and rapidly expanding literature on the subject.

We found that many private investors choose to invest in natural capital to reduce risks, boost the resilience of their portfolios and/or enhance their reputation. Investing in natural capital can also add valuable diversity to many portfolios and be profitable, given the right opportunities. Based on this analysis, we identified potential levers to attract greater private investment into natural capital and formulated specific recommendations to accelerate growth in this area.



The context: “the planet is burning”

Many mainstream investors, such as pension funds, endowments and insurance companies are paying much closer attention to the environmental impact of their investments. They do so in response to accumulating evidence that the natural capital we all rely upon is being quickly eroded and could put our overall economic model at risk. This, combined with stakeholder pressure, government guidance and regulatory changes, is leading to changes in investors’ behaviours and areas of interest.

Much of this increased interest can be linked, directly or indirectly, to two major initiatives in 2015: the Paris Agreement on climate change and the adoption of the UN’s Sustainable Development Goals (SDGs).

The fact that the global challenges of climate change and the rapid decline in natural resources (freshwater, oceans, soil and biodiversity) are all closely interconnected is also becoming increasingly well understood by the investment community. This was a major theme of the UN Climate Summit in September 2019.

“The Paris Agreement was the biggest trigger,” said Andrew Mitchell founder of the Natural Capital Finance Alliance and senior advisor to Mirova Natural Capital. “It made the financial sector realise that fossil fuels had been put ‘on notice’. So there are “vast amounts of capital looking for a greener home.”

An invitation to hear from pioneer investors in natural capital – and to join them

As our survey shows, a growing number of investors can see that using nature to future-proof their investments is not just a ‘nice’ thing to do, it is the only way to boost the resilience of their investment portfolio.

Section 2 of this report sets the scene. We define **what** natural capital is and how investing in natural capital differs from broader categories such as sustainable and green finance. We highlight **why** the moment to invest in natural capital has clearly arrived and **how** several market-led and government-led initiatives are providing a framework for investors to do so. We then set out how one can invest in natural capital based on concrete examples.

Section 3 analyses emerging trends in natural capital investments based on the survey results. We look at investors’ current activities, future plans and the incentives they feel are needed to boost further investment in this area. We show that several leading investors are moving beyond carbon and are shifting towards a broader set of natural capital assets. They do so via a broad range of financial instruments, including blended finance funds, green bonds, sustainability-linked loans, private equity and direct investments in physical assets. We also examine in more detail the obstacles hindering the scaling-up of natural capital investments.

In Section 4, we identify key areas where action by governments, investors, project sponsors and intermediaries (such as banks, consultants and NGOs) will be needed to mobilise greater private finance for nature-based resilience. We highlight recent promising developments and recommend that work accelerates in these areas.

In addition:

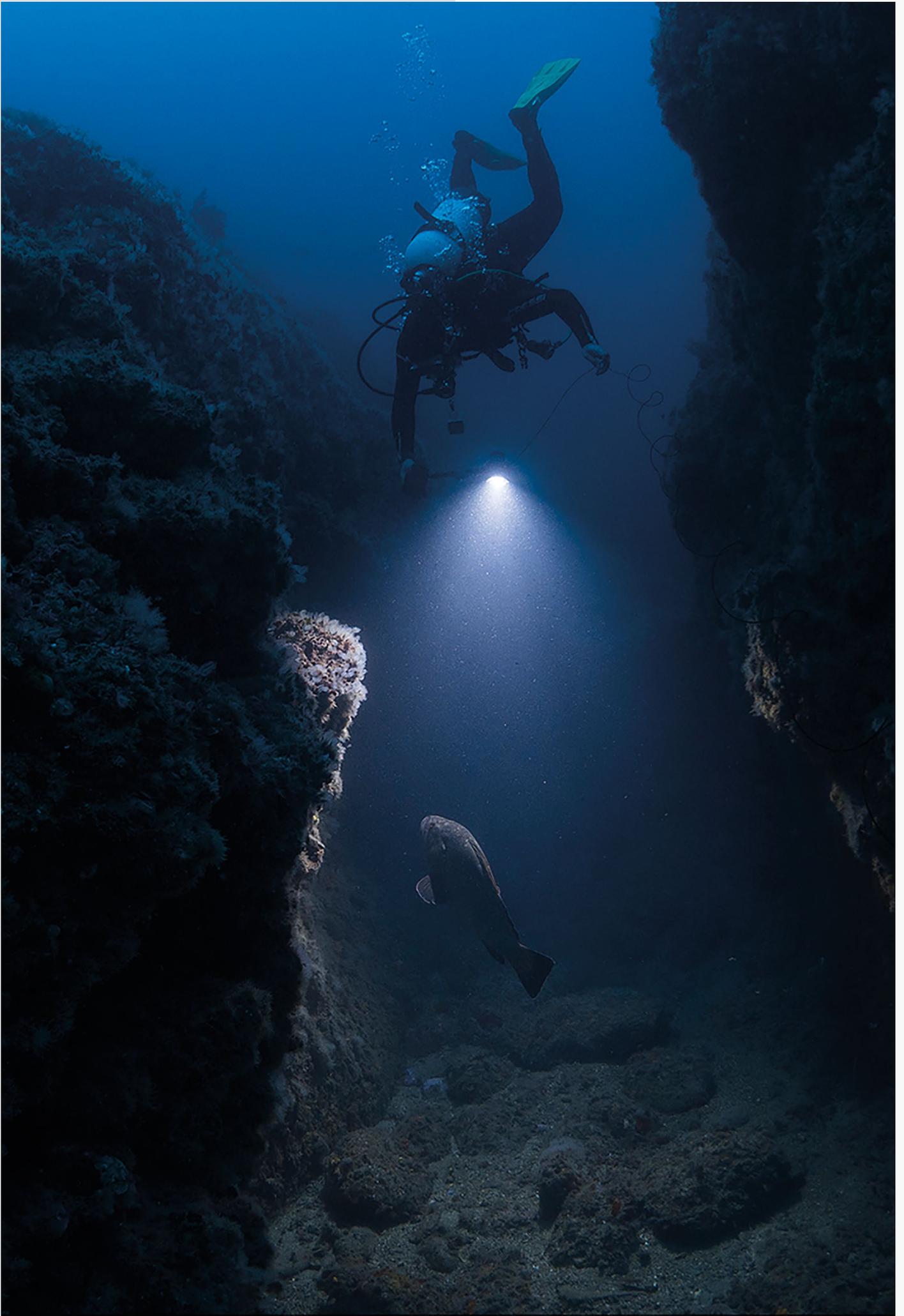
- **Annex A** presents case studies of natural capital investments;
- **Annex B** provides an overview of the methodology underlying this report;
- **Annex C** contains a glossary of key sustainable finance-related terms;
- **Annex D** lists key references;
- **Annex E** acknowledges the numerous contributions that have enriched this report.



“The SDGs are helpful, as they provide a common language,” added Lauren Ferstandig, NatureVest deputy managing director, transaction origination at The Nature Conservancy. They are “helping to standardise very diverse ideas about what sustainability means.”

2. Setting the stage: what is natural capital and why is it important?

This section sets the scene. We define what natural capital is and how investing in natural capital differs from broader categories such as sustainable and green finance. We highlight why the moment to invest in natural capital has clearly arrived and how several market-led and government-led initiatives are providing a framework for investors to do so. We then set out how one can invest in natural capital, based on concrete examples.

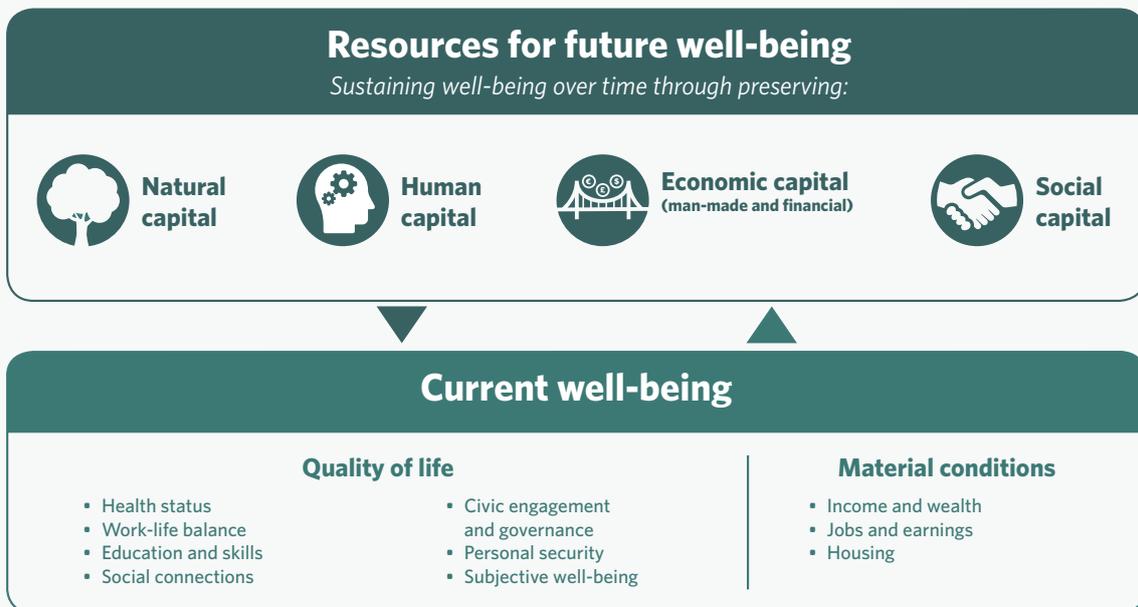


What is natural capital

Natural capital is the stock of renewable and non-renewable resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people. (Natural Capital Coalition website)

Natural capital is one of four categories of capital that is critical to sustaining well-being over time, as per the OECD's well-being framework summarised in Figure 2.1 below.

Figure 2.1 – Four types of capital are essential to sustain well-being



Source: adapted from OECD, 2019.

Economic capital is the only form of capital that economic indicators consistently and comprehensively track at present. As a result, investment in natural capital tends to be under-prioritised, as natural capital often suffers when investments in economic capital thrive. For example, the Gross Domestic Product (GDP) indicator records an increase in economic activity when a forest is cut down to produce wood, grow soya or graze cattle but does not track the corresponding decrease in the stock of natural capital when such activities take place. When burning forests, draining swamps, removing coastal mangroves or killing bees with harmful pesticides, natural capital is destroyed.

The services that such capital has been providing for thousands of years and could continue to provide if unaltered (such as carbon sequestration, natural flood protection, coastal resilience or pollination) are irremediably lost. By contrast, maintaining a forest intact so that it continues to sequester carbon, regulate water flows or harbour a wide range of native species is not counted in standard economic indicators, especially when nature does its job on its own.

Existing economic indicators do not enable us to gain an overall understanding of how stocks of natural capital are evolving and what is being invested to maintain or build up

such stocks. Although methodologies are being developed to give natural capital the place it truly deserves amongst other categories of capital, these have not been fully mainstreamed.

The shortcomings of measures such as Gross Domestic Product (GDP) are attracting increasing attention. [The Economics of Ecosystems and Biodiversity \(TEEB\)](#) initiative has been working since 2007 to mainstream the values of biodiversity and ecosystem services into corporate and governmental decision-making, so as to “make nature’s values visible”. Its key report (TEEB, 2010) concluded that: “Valuing ecosystem services and biodiversity in monetary terms can be complex and controversial ... Nevertheless, both economics and ethics demand more systematic attention to the values of biodiversity and ecosystem services”. There is growing recognition of the shortcomings of GDP as a measure of economic performance and social progress and many efforts to develop a better alternative, but there are no signs of an imminent breakthrough (EC, 2009).

Estimates have been made of the monetary value of certain categories of natural capital. For example, the current whale population could be valued at more than \$1 trillion, according to the International Monetary Fund (Chami et al. 2019) and

the production value of insect pollination to the UK economy has been estimated at £430 million (Smith et al., 2011). The United Nations has developed a [System of Environmental Economic Accounting](#) and launched the [Natural Capital Accounting project](#), with support from the European Union.

We do not have adequate metrics for a comprehensive assessment of natural capital value at this stage. To address these shortcomings, the UK government launched the Dasgupta Review in March 2019 to assess the economic benefits of biodiversity globally, assess the economic costs and risks of biodiversity loss and identify a range of actions that can simultaneously enhance biodiversity and deliver economic prosperity. The review will include an assessment of how biodiversity loss affects climate change. Supporting broader development and adoption of these methodologies is a key recommendation discussed in Section 4.

Despite the lack of solid measures, we know with growing confidence, however, that stocks of natural capital upon which we all rely are being rapidly depleted. Current investments are insufficient to counterbalance the destruction of natural capital in other parts of the world. Examples of this rampant destruction of natural capital are set out in Box 2.1 below.

Box 2.1 – Natural capital destruction: indicators are flashing red

- **Air:** the concentration of greenhouse gases (GHGs) in the atmosphere, a key factor causing changes to the climate, has been on a steady rise for decades. In May 2019, sensors in the Mauna Loa Observatory in Hawaii recorded that Earth’s atmospheric concentration of carbon dioxide (CO₂) had passed 415 parts per million (ppm) for the first time in human history ([Earth System Research Laboratory](#)).
- **Biodiversity:** freshwater biodiversity saw a massive 81 percent decline globally between 1970 and 2014, the equivalent of a 4 percent decline every year. Marine biodiversity and terrestrial biodiversity declined by 39 percent over the same period (WWF, 2018).
- **Coral reefs** are the most endangered marine ecosystems as a result of global warming-induced bleaching and ocean acidification. About 30 percent of the world’s coral reefs are already destroyed and 58 percent are potentially threatened (Hilmi et al, 2018).
- **Forests:** [Global Forest Watch](#) has compiled satellite images collected by the World Resources Institute. It paints a gloomy picture, putting the decline in tree cover in 2018 at 72.6 million acres, almost 50 percent more than in 2015. That analysis is supported by on-the-ground observations, especially in Southeast Asia, where forest continues to be converted to oil palm.
- **Mangroves:** 50 percent of the world’s mangroves were lost in the past half century ([Global Mangrove Alliance](#)).
- **Peatlands:** 25 percent of peatlands globally have been destroyed ([IUCN UK Peatland programme](#)), due to drainage for agriculture and forest planting, atmospheric deposition, extraction, burning or over-grazing.
- **Soil erosion:** less than 25 percent of the Earth’s land surface has escaped substantial impacts of human activity and by 2050, this will have fallen to less than 10 percent (IPBES, 2018). The FAO-led Global Soil Partnership reports that 75 billion tonnes of soil are eroded every year from arable lands worldwide, which equates to an estimated financial loss of \$400 billion per year in agricultural production (GSP, 2017).
- **Water resources:** Over 2 billion people live in countries experiencing high water stress and about 4 billion people experience severe water scarcity during at least one month of the year. This is expected to increase as demand for water grows and the effects of climate change intensify (WWAP, 2019).

Why is it important to invest in natural capital?

Harnessing the power of nature can often provide services in a more cost-effective and durable manner than what built capital can achieve. Investing in the restoration and protection of nature is critically important to help combat climate change, stem biodiversity loss and slow the depletion of essential resources such as freshwater and soil.

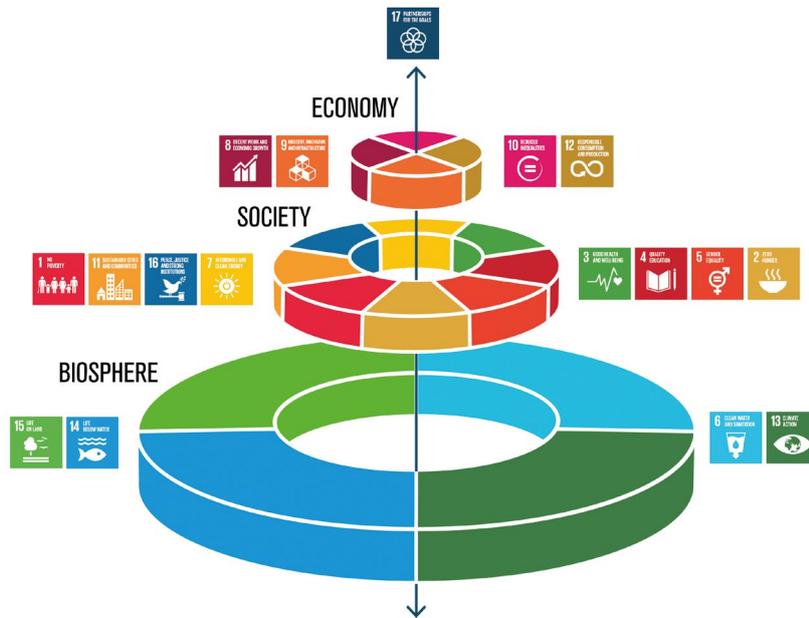
According to the [Natural Climate Solutions](#) campaign, restoring ecosystems is “the single most undervalued and underfunded tool for climate mitigation” (Natural Climate Solutions website). One major study in 2017 concluded that natural climate solutions could provide over one-third of the

cost-effective climate mitigation needed between now and 2030 to stabilise global warming to below 2 °C (Griscom et al., 2017). Nature-based solutions also have a vital role to play in dealing with the physical impacts of climate change, as highlighted by the [Global Commission on Adaptation](#), which recognised that “nature-based solutions can be cheaper, longer lasting and yield more co-benefits than technology-based solutions” (Global Commission on Adaptation, 2019).

To date, forestry has received the most attention among nature-based solutions to climate change, as deforestation is estimated to be responsible for about 20 percent of



Figure 2.2 – Investing in the biosphere underpins all other SDG



Source: Azote images for Stockholm Resilience Center

global greenhouse gas emissions ([Centre for International Forestry Research](#)). Peatlands also have a critical role to play as they represent the world's largest terrestrial stock of organic carbon. Emissions of greenhouse gases (GHGs) from drained or burned peatlands are currently estimated to account for about 5 percent of the global carbon budget. The [Global Peatlands Initiative](#) is an effort by leading experts and institutions to curb these emissions, which occur when existing peatlands are degraded and release GHGs into the atmosphere.

In recent years, the oceans have also been attracting increasing attention. A recent report from the [High Level Panel for a Sustainable Ocean Economy](#), based at the World Resources Institute, estimated that ocean-based mitigation measures could achieve 21 percent of the GHG reductions needed to restrict the rise in average temperatures to 1.5°C by 2050 (Hoegh-Guldberg et al., 2019). The overall ocean economy has recently been estimated as being in the order of \$1.5 trillion – \$3.0 trillion annually, roughly 3 percent to 5 percent of global GDP, according to the [Mapping Ocean Wealth](#) project, an initiative of The Nature Conservancy

and the World Bank. A surprising contribution from marine resources is highlighted in a recent paper from the [International Monetary Fund](#) which stresses that whales play an important role in carbon sequestration as well as having a beneficial impact on fish stocks and eco-tourism. Together, these 'ecosystem services' mean that "the estimated current stock of whales could be valued at well over \$1 trillion," IMF economists say. This suggests whale conservation projects could potentially be rewarded with carbon offset credits, as other sequestration projects already are.

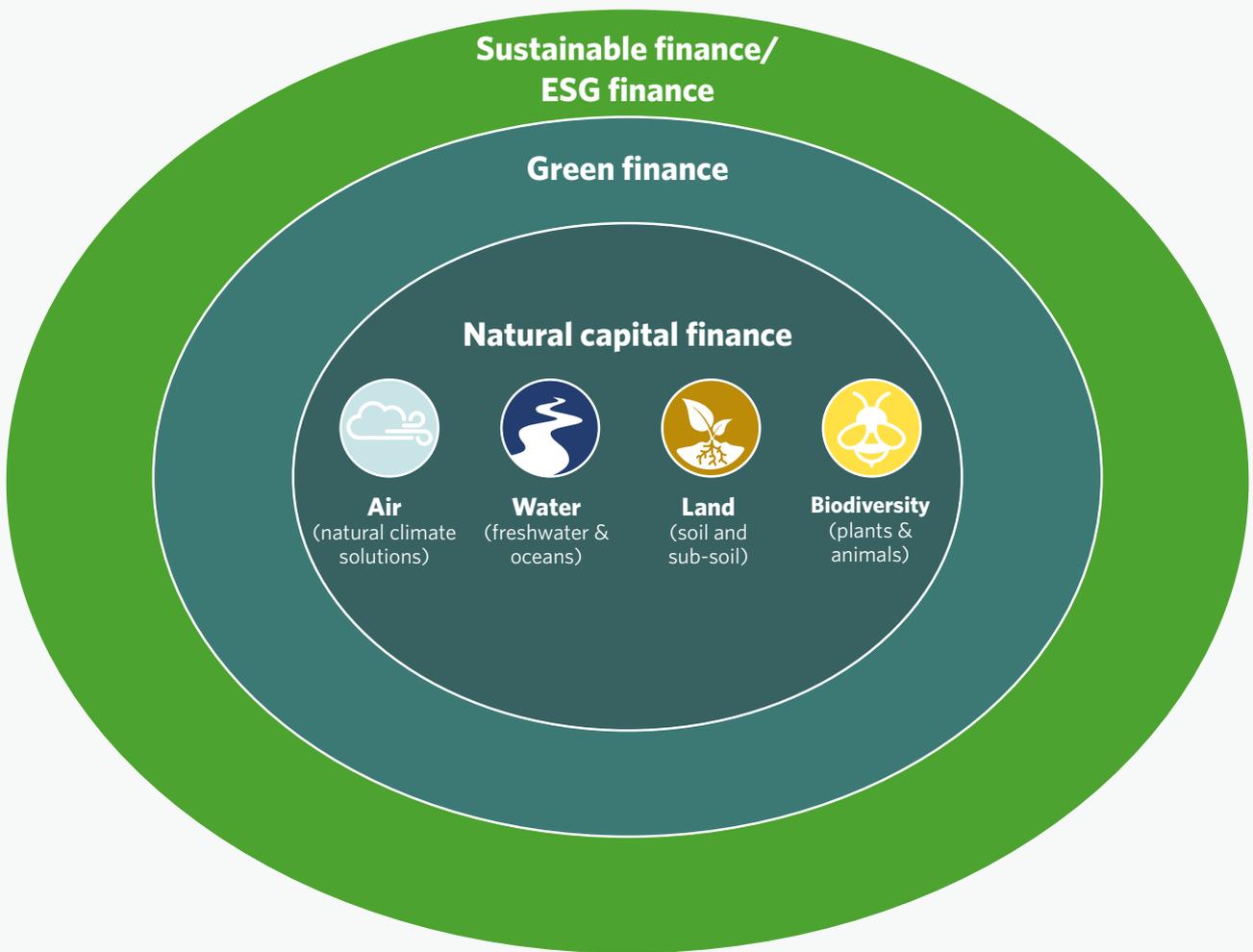
A healthy natural environment is at the heart of human development and underpins the achievement of all Sustainable Development Goals (see Figure 2.2). Indeed, the provision of food and water, habitat and biodiversity maintenance, and carbon storage and sequestration make contributions to most SDG targets. Preserving freshwater resources is particularly important. As the UN says in its report on SDG 6: "Water is life. Progress in nutrition, health, education, work, equality, environmental protection and international cooperation are all related to the availability and sustainable management of water" (Wood et al. 2018).

Natural capital investments represent a small share of sustainable finance

Investments in natural capital are a sub-set of larger categories, such as ESG financing, sustainable finance or green finance, as shown in Figure 2.3. Importantly, not

all investments in sustainable or green finance lead to improvements in natural capital.

Figure 2.3 – Clarifying the language: categories of sustainable finance



Source: authors



Sustainable finance is the broadest category and is closely linked to ESG finance. The [Global Sustainable Investment Alliance](#) (GSIA) defines sustainable investing as “an investment approach that considers environmental, social and governance (ESG) factors in portfolio selection and management”. The vast majority of these investments are counted towards sustainable finance based on whether they conform with ESG criteria using some form of negative or exclusionary screening (for example, to exclude the most polluting investments).

Sustainable finance investments have experienced remarkable growth in recent years, which looks set to continue. According to GSIA, sustainable investment assets stood at \$30.7 trillion at the start of 2018, a 34 percent increase in two years. According to (McKinsey, 2018), they represented some 35 percent of all ‘professionally managed’ assets.

According to a recent report (HSBC, 2019), this trend is set to continue: “Over 90 percent of both issuers and investors say these [sustainability] issues are either ‘very important’ or ‘important,’” says Daniel Klier, Global Head of Sustainable Finance at HSBC. “Capital markets participants have responded to a shift in society, not reluctantly, but enthusiastically,” the report says. Based on its survey, the study predicts: “Large shifts in capital allocation are coming, in response to sustainability issues (...) Two thirds of investor respondents will start buying green, social and sustainable bonds in the next two years, or increase their allocation to them.”

Green finance is more narrowly defined as it concentrates on environmental and climate change issues. Investment

in renewable energy and energy efficiency dominates this category, with renewables alone attracting about \$1.6 trillion of investments since 2010 according to (Bloomberg New Energy Finance, 2019).

Natural capital, or ‘conservation’ finance, represents a small slice of the overall sustainable finance market. For example, only a minority of green bonds funding water sector investments – those that specifically support nature-based solutions – would lead to investments in natural capital. Germany’s NRW Bank is a leader in this area, having raised a total of EUR4.6 billion from eight green bonds, of which 30 percent is earmarked for climate change adaptation projects, including restoration of the river Emscher. Key performance indicators for these bonds include: number of species in the river, prevented flooding damages (in EUR), areas of (re-) created floodplains and adjacent land (real wetlands) (in m²).

There are no robust estimates of how much investment is going into natural capital at present, due to the lack of adequate metrics and robust methods to track these investments. Existing estimates vary widely. In 2016, Credit Suisse and McKinsey estimated that conservation finance was attracting about \$52 billion per year, of which the vast majority came from public and philanthropic sources (Credit Suisse & McKinsey Center for Business and Environment, 2016). According to Ecosystem Marketplace, private investments in conservation totalled just \$8.2 billion over the period 2004-2015 (Forest Trends, 2017). Results from our survey, presented in Section 3, indicate that investments in natural capital are expected to grow. Robust metrics will be needed going forward to track their evolution and the extent to which these investments respond to policy guidance, market-led initiatives and government regulation.

Investing in natural capital: the moment has arrived – but greater focus is needed

In the last 15 years, conducive public policies and market-led initiatives have emerged to support a transition towards sustainable finance. Numerous initiatives emerged in the

wake of the adoption of the SDGs and the Paris Agreement on climate change, as shown in Figure 2.4 and Table 2.1.

Figure 2.4 – Key initiatives in support of sustainable finance

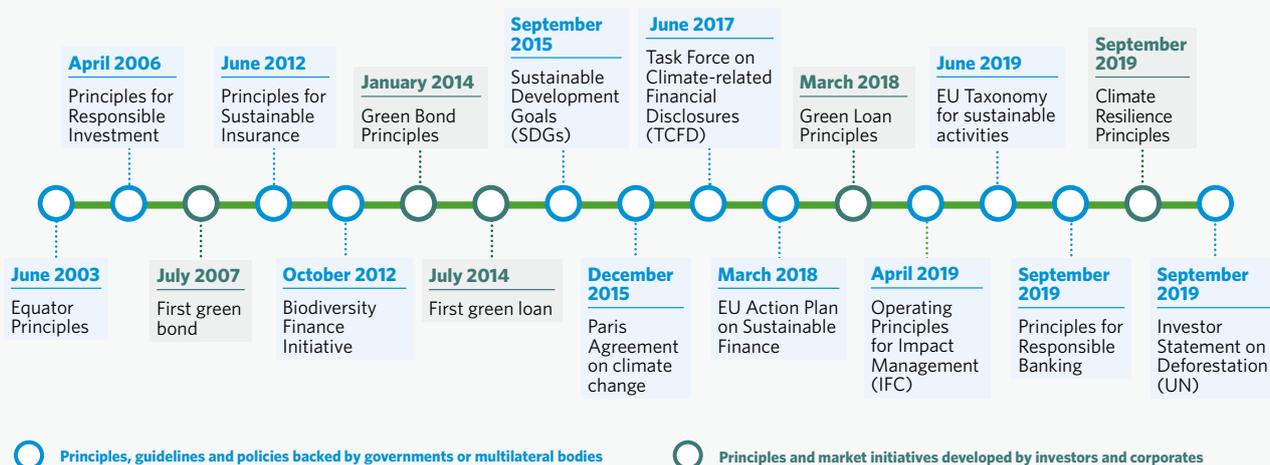


Table 2.1 - Initiatives to support sustainable finance and implications for natural capital finance

Initiative/Policy	Key aims	Implications for natural capital finance
<p>Equator Principles (2003) These voluntary standards were originally based on the International Finance Corporation’s policies for dealing with environmental and social risks. They have since been adopted by 99 financial institutions and are now managed and revised by a group of signatories – the Equator Principles Association.</p>	<ul style="list-style-type: none"> Minimise environmental and social risks in project finance. Signatories pledge to refuse project finance to clients who will not, or are unable to, comply with the Principles. 	<ul style="list-style-type: none"> Proposed changes to the Principles (2019) would encourage alignment with the SDGs and insert the clause: “we support conservation, including the aim of enhancing the evidence base for research and decisions relating to biodiversity”.
<p>Task Force on Climate-related Financial Disclosures (2017) Established by the G20’s Financial Stability Board. It called on all financial and non-financial organisations with public debt or equity to implement its recommendations and suggested that they publish their disclosures in their mainstream annual financial filings.</p>	<ul style="list-style-type: none"> Develop voluntary, consistent climate-related financial disclosures that would be useful to investors, lenders, and insurers in understanding material risks. 	<ul style="list-style-type: none"> Special guidance has been produced to help particular industry sectors – including agriculture, food and forest product companies – to implement the recommendations.

Table 2.1 - Initiatives to support sustainable finance and implications for natural capital finance (continued)

Initiative/Policy	Key aims	Implications for natural capital finance
<p>EU Action Plan: Financing Sustainable Growth (2018) The plan was based on the recommendations of the European Commission’s High-Level Expert Group on Sustainable Finance. It proposes regulations obliging institutional investors to disclose how they factor ESG concerns into their risk management processes.</p>	<ul style="list-style-type: none"> Reorient capital flows towards sustainable investment, to achieve sustainable and inclusive growth. Manage financial risks stemming from climate change, environmental degradation and social issues. Foster transparency and long-termism in financial and economic activity. 	<ul style="list-style-type: none"> The Action Plan is intended to complement the EU’s 7th Environment Action Programme which aims: “to protect, conserve and enhance the European Union’s natural capital”.
<p>Principles for Responsible Banking (2019) These Principles are intended to provide a “framework for a sustainable banking system”. They were developed by representatives of 30 banks, with support from the UNEP Finance Initiative. They now have support from 130 banks from 49 countries, representing more than \$47 trillion in assets.</p>	<ul style="list-style-type: none"> Align banks’ business strategy with the SDGs, the Paris Agreement and “relevant national and regional frameworks”. Other goals include: “Continuously increase our positive impacts while reducing the negative impacts on, and managing the risks to, people and environment resulting from our activities, products and services”. 	<ul style="list-style-type: none"> The Principles acknowledge that the “sustainable use of natural resources” is essential to enable businesses to thrive.
<p>Operating Principles for Impact Management (2019) This initiative was led by the IFC in response to investor concerns about the lack of a common standard for what constitutes “impact”.</p>	<ul style="list-style-type: none"> To provide “greater discipline and transparency in impact investing” and ensure “a high standard for the social and environmental impact that these funds could achieve”. 	<ul style="list-style-type: none"> These Principles call on investment managers to “define strategic impact objectives for the portfolio or fund to achieve positive and measurable social or environmental effects, which are aligned with the SDGs, or other widely accepted goals”.
<p>EU Taxonomy for Sustainable Activities (2019) This classification system aims to provide practical guidance for policy makers, industry and investors on how best to support economic activities that contribute to achieving a climate-neutral economy.</p>	<ul style="list-style-type: none"> The taxonomy integrates the TCFD recommendations and presents a list of economic activities which can make a substantial contribution to climate change mitigation. 	<ul style="list-style-type: none"> Approved activities must also “do no significant harm” to the sustainable use and protection of water and marine resources and the protection of healthy ecosystems.
<p>Climate Resilience Principles (2019) The NGO Climate Bonds Initiative developed these Principles to integrate criteria for climate change adaptation and resilience into the Climate Bonds Standard.</p>	<ul style="list-style-type: none"> To “support the mainstreaming of climate resilience considerations across all green bonds as well as improve transparency in the market for green bonds that aim to enhance resilience”. 	<ul style="list-style-type: none"> Criteria aligned with these Principles are to be developed for particular sectors, including water, forestry and agriculture.
<p>Investor Statement on Deforestation (2019) This initiative coordinated by two non-profit investor groups – Ceres and the Principles for Responsible Investment – was launched in response to the large number of forest fires in the Amazon in August 2019. It has been signed by 230 investors managing more than \$16 trillion.</p>	<ul style="list-style-type: none"> The statement says: “We see deforestation and the associated impacts on biodiversity and climate change as systemic risks to our portfolios and see the reduction of deforestation as a key solution to managing these risks.” 	<ul style="list-style-type: none"> Recognises the crucial role that tropical forests play in tackling climate change, protecting biodiversity and ensuring ecosystem services.



Interestingly, formal guidance or principles on best practice have often emerged several years after new investment instruments had been developed. For example, almost seven years went past between the first green bond being launched by the EIB in July 2007 and the adoption of the Green Bond Principles in January 2014. Formalisation took only four years between the first green loan in July 2014 and the Green Loan Principles in March 2018.

Most of these initiatives have established voluntary principles and commitments, rather than binding commitments. A recent survey by McKinsey found that 89 percent of investors believe there are too many reporting standards at present (Bernow S. et al., 2019). Both the TCFD and the EU Taxonomy are attempts to standardise the disclosure and reporting of environmental information.

Several influential voices are already calling for the TCFD recommendations to be made mandatory and the Principles for Responsible Investing – a group of asset owners and investment managers together managing more than \$70 trillion – is calling on all its signatories to adopt them by 2020 (PRI, 2019).

These initiatives have so far lacked an explicit focus on fostering investment in natural capital. Additional initiatives have adopted a clearer focus on mobilizing finance for natural capital, including the [Natural Capital Finance Alliance \(NCFA\)](#) and the [Coalition for Private Investment in Conservation \(CPIC\)](#). The NCFA is a collaboration between the UN Environment Programme Finance Initiative (UNEP-FI), Global Canopy (an NGO focused on deforestation) and the finance sector which works towards integrating natural

Box 2.2 - Greening Norway's "oil fund"

Norway's Government Pension Fund Global, one of the largest asset owners in the world, is a striking example of how the Sustainable Development Goals and the recommendations of the TCFD are helping raise corporate awareness of the importance of natural capital. This \$1 trillion fund – popularly known as the "oil fund" – invests in more than 9,000 companies across 70 countries and is managed by Norges Bank Investment Management (NBIM).

"We have a single objective – the highest possible return with moderate risk," says Yngve Slyngstad, the asset manager's CEO. "Our work on generating a long-term return is enhanced by investing in companies that act responsibly and create long-term value" he wrote in the fund's "[Responsible Investment report](#)" (NBIM, 2018). "Sustainable development can make the companies in our portfolio more robust and contribute to the fund's long-term return" the report states. The framework for NBIM's responsible investment decisions are largely determined by voluntary, non-statutory recommendations from the OECD and the UN, it adds.

The oil fund has set out its expectations of the companies in which it invests in a series of reports on topics including ocean sustainability, water management and climate change. All of these urge companies to be guided by the SDGs and to align their disclosures with the recommendations of the TCFD.

"We believe that the continued degradation of the ocean could reduce companies' ability to generate value for investors in the long term," NBIM's Oceans report says (NBIM, 2019a). "Companies may ... face physical risks from degraded or over-exploited resources, limited access to markets, legal and regulatory risks following increased attention to ocean issues, and reputational risks". Similarly, the Water Management report says: "Water stress stemming from overuse of water resources, pollution, droughts or floods may affect business profitability through operational disruptions, reduced product life, loss of market access or capital expenditure risks. It may also change the competitive landscape or market demand" (NBIM, 2019b).

Many other state-owned investment institutions are also increasing their focus on environmental issues, as highlighted in the [Invesco Global Sovereign Asset Management Study \(2019\)](#). This study found that 60 percent of sovereign wealth funds now have a specific ESG policy, up from 44 percent in 2017. Environmental factors such as climate change and resource efficiency are now deemed more important for the sovereign wealth funds than governance issues such as executive remuneration to drive their investments. Climate change was the most important ESG consideration but water scarcity was the issue that had increased in importance the most since 2017.

capital considerations into financial decision-making. It has developed guidance on connecting finance and natural capital as a supplement to the Natural Capital Protocol (Natural Capital Coalition, 2017). The CPIC was founded by Credit Suisse, Cornell University, the International Union for Conservation of Nature (IUCN) and The Nature Conservancy/NatureVest to support a material increase in private, return-seeking investment in conservation.

It is clear from the survey responses and parallel interviews conducted for this report that the SDGs and other initiatives are already having a significant influence on banks and institutional investors, despite having no regulatory force. This is true even for some of the very largest asset owners, such as the Norway Oil Fund for example, as set out in the box above.

Going forward, the possibility of setting up a Task Force on Nature-based Financial Disclosures (TNFD), along the lines of the TCFD, is being discussed by several central banks.

The UK government has pledged to "work with international partners to catalyse market-led action on enhancing nature-related financial disclosures" in its Green Finance Strategy, published in July 2019 (UK Government, 2019). The Dutch and French governments are also interested, according to Andrew Mitchell, founder of the NCF. The Chinese government has been approached about the idea, as it may be possible to launch the TNFD at the UN Convention on Biological Diversity in 2020 in Kunming (China). This meeting will aim to set bold targets for curbing the loss of biodiversity over the next decade. This could have a galvanising effect on the investment community's attitude to biodiversity in a similar way that the Paris Agreement did for climate change.

How can one invest in natural capital?

Investing in natural capital means investing to stop its rampant destruction, restoring what has already been lost and expanding its reach. To assess an investment's impact on natural capital, the key criterion is to evaluate whether it results in a net destruction or enhancement of natural capital.

A key step for concerned institutions consists of reviewing their portfolios and divesting from those companies perceived to be having a negative impact on natural capital. Most of the assessments so far have focused on estimating divestments from fossil-fuel companies. For example, since the Paris Agreement of December 2015, more than 900 investors managing more than \$11 trillion have pledged to divest their holdings in fossil-fuel companies, according to (350.org, 2019). Companies whose activities contribute to deforestation are another priority for some investors, although others argue that engaging with these companies can be more beneficial and that divestment should be a last resort. In-depth assessments of divestments have yet to be conducted for the full range of natural capital assets. More research is required to assess the scale of divestments aimed at preserving natural capital.

Investors can choose from a wide range of instruments to invest in natural capital. They include direct purchases of real assets such as forests or agricultural land, private and listed equity in companies supporting natural capital and mitigation offsets for water, biodiversity and greenhouse gas emissions. Direct investments by companies may include the following:

- **Mitigation markets:** mandatory mitigation markets require project developers to compensate for ecosystem impacts by enhancing the natural environment elsewhere. Private capital can sometimes participate in these markets (via mitigation banking or stormwater credits as shown in Annex A). Private sector actors can also buy credits in voluntary mitigation markets (e.g. voluntary carbon credits).
- **Infrastructure investments:** infrastructure related to the delivery of drinking water and sanitation, flood protection or urban infrastructure can offer the opportunity to include nature-based solutions, either on a standalone (green only) basis or alongside grey infrastructure. Private investors can support the development of these nature-based solutions when there is an economic case for doing so, as these solutions can be a cost-efficient way to deliver results with many associated co-benefits.

- **Investments in private companies' own means of production:** private companies may also invest in nature-based solutions to enhance the functioning of their own capital stock (overall 'portfolio resilience', e.g. to climate change). This can also be a way to enhance a company's reputation and ESG credentials.

In recent years, we have seen dramatic growth in the range of debt instruments that enable fixed income investors to invest more sustainably. A small, but growing, number of these help finance the conservation of natural capital. The green bond market provides a striking example. While the vast majority of green bonds are used to finance renewable energy and energy efficiency projects, the model is increasingly being used for other environmental initiatives such as improving water quality and protecting coastlines and vulnerable forests. The market has its critics, with many green bonds being accused of 'greenwashing', but it is proving increasingly popular with mainstream investors and new standards are being developed for bonds supporting nature-based projects. Other innovative financial instruments being used to channel private finance to natural capital projects include blended finance funds and sustainability-linked loans, in which the interest paid depends on the environmental performance of the borrower.

Finally, there has been rapid growth in the number of 'impact' funds which are designed with the express intention "to generate positive, measurable social and environmental impact alongside a financial return"(GIIN, 2019).

Because ecosystems are complex, investing in one type of natural asset can generate benefits for other components of the natural world. A clear example of that relates to investments in protecting freshwater resources, which typically entail investments in forests, soil (including in sustainable agriculture to reduce nutrient leaching and sediment run-off) as well as freshwater assets (to reconnect rivers with their floodplains, restore degraded peatlands and wetlands or replenish aquifers). Investments in natural capital to enhance water security can generate benefits for other categories of natural capital as well, including climate adaptation and biodiversity as explained in more detail in Table 2.2 - and in (Trémolet, S., et al. 2019).



Table 2.2 - Investments to protect freshwater resources generate multiple benefits for other types of natural capital

Investments to benefit freshwater resources	
Types of investments	Examples of benefits generated
<ul style="list-style-type: none"> ▪ Sustainably managed forests ▪ Sustainable agriculture ▪ Peatland restoration ▪ Wetlands restoration and construction ▪ Aquifer recharge ▪ Water right purchases (to preserve environmental flows or limit groundwater abstraction) ▪ Reconnecting rivers with floodplains 	<ul style="list-style-type: none"> ▪ Water quality (surface and groundwater) ▪ Water availability ▪ Carbon sequestration ▪ Reduced carbon emissions ▪ Fire risk reduction ▪ Flood risk reduction

Source: authors

Similarly, investing in forests can help capture multiple benefits for carbon sequestration, water security, soil health and rural economies related to forest products. Deforestation is estimated to be responsible for about 20 percent of global GHG emissions. It is widely acknowledged that sustainable forest finance must increase dramatically to achieve the goals of the UN Framework Convention on Climate Change (UNFCCC), as well as those of the UN Convention on Biological Diversity (CBD) and other international agreements.

Investing in forestry is attractive for institutional investors: its correlation with other asset classes is low and as such, it can provide a hedge against inflation. Many large investors have direct holdings in forests, as part of their real estate allocation. An alternative to owning forests outright is to buy shares in Timberland Investment Management Organisations (TIMOs), which acquire timber investments and subsequently manage them on behalf of their clients.

Interest in using bonds to finance forest preservation has accelerated in recent years, thanks to the growth of the green bond market and the United Nations' REDD+ mechanism (Reducing Emissions from Deforestation and forest Degradation) which awards tradable carbon credits to projects that curb GHG emissions from forests in developing countries. The [UN-REDD Programme](#) goes so far as to say: "Achieving the objectives of the Paris Agreement at the pace required will not possible without nature-based solutions, such as REDD+ and forest landscape restoration". (Espinosa & Saint-Laurent, 2018). The World Bank recommended three types of bonds to help finance forest preservation efforts (World Bank, 2017):

- A public bond structure supported by REDD+ for national or sub-national outcomes;
- A bond issued by a public bank in support of concessional lending for sustainable forest activities, supported by REDD+ for plot-level outcomes; and
- A corporate issued bond for sustainable forest management, supported by REDD+, for project-level outcomes.

A recent study by GIIN, based on conversations with 24 asset owners and managers involved in sustainable forestry, highlighted the variety of potential revenue streams from such projects, which include sales of timber, carbon offsets, other forest products, land rights for permanent conservation (e.g. easements) and land leasing (GIIN, 2019). Some industry leaders predict that conservation finance and environmental markets will redefine timberland investments. David Brand, CEO of New Forests, foresees a new management regime that breaks down forestry assets into different elements such as timber production, carbon sequestration and water regulation. As a result, "investors will reap higher profits while addressing climate change". According to Brand, "Forests are going to become a type of natural infrastructure. All forests will be managed for their climate change benefits. All forest products are going to be part of the global imperative to deal with climate change - and that will become valuable".

Case studies in **Annex A** illustrate the variety of ways investors can invest in natural capital, via different asset classes and financial instruments, including in forestry, oceans, freshwater resources, sustainable agriculture and land conservation.



... But specific challenges remain to mobilise private investments in natural capital

As with all goods that generate public benefits beyond private income streams, the public sector is a critical investor in natural capital. Although public investments are likely to remain needed and significant going forward, public sector investments alone will not be sufficient to ensure that current deteriorating trends are slowed or reversed. Privately-owned funds are comparatively much larger and will be needed to bring forward investments in natural capital, to prevent its deterioration and fund its restoration.

Some private funds, such as impact investment funds, can be deployed in a more flexible and smarter manner than public funds so as to catalyse larger-scale private investments. Impact investors, for example, are showing a growing interest in natural capital according to the [Global Impact Investment Network \(GIIN\)](#). Its Navigating Impact guide provides investors with toolkits to help them identify best practices in different investment themes, such as water and sanitation, along with recommended metrics for each theme (GIIN, n.d.).

However, many private investors with an interest in natural capital are deterred from investing in this area by the difficulty of finding projects of a suitable scale, a lack of data to measure the impact of their investments and, in some cases, difficulties in working alongside government or other public sector investors.

Nature-based projects do not lend themselves to ‘commodification’: each investment needs to be tailor-made for specific local conditions, and they tend to be small-scale interventions in the landscape. They can also be riskier than most conventional investments and take longer to set up. Although government support can be helpful in de-risking projects, it can also slow the process down, some private institutions complain.

The following section presents results from the survey undertaken jointly by The Nature Conservancy and *Environmental Finance* to assess current market trends in more detail.

3. Private investments in natural capital: emerging trends

This section analyses emerging trends in natural capital investments based on the survey results. It is based on a survey of 62 asset-owners and managers who jointly manage more than \$3 trillion in assets.

We look at investors' current activities, future plans and the incentives they feel are needed to boost further investment in this area. We show that several leading investors are moving beyond carbon and are shifting towards a broader set of natural capital assets. They do so via a broad range of financial instruments, including blended finance funds, green bonds, sustainability-linked loans, private equity and direct investments in physical assets. We also examine in more detail the obstacles hindering the scaling-up of natural capital investments, to provide a basis for recommendations in the next section.

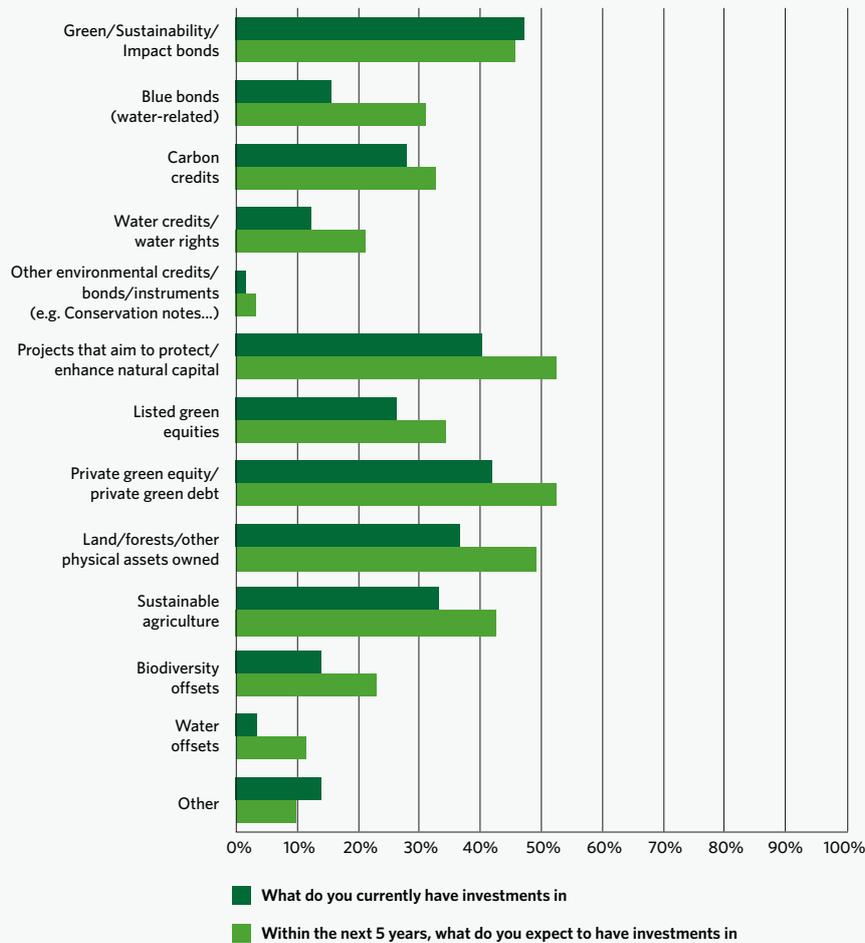


Survey reveals growing interest for investing in natural capital

The survey revealed green bonds to be the single most popular asset class for institutions seeking sustainable investments. Of the 58 investors in our survey that provided details of their investments, 47 percent said they hold green or sustainability bonds, 43 percent said they invest in private

debt and/or private equity and 41 percent invest directly in 'projects that aim to protect/enhance natural capital.' The popularity of green bonds is even more pronounced among the 17 institutions managing more than \$4 billion, with 12 already invested in this asset class.

Figure 3.1 – Investors' current and expected future investment mix



Source: TNC/Environmental Finance survey 2019

Box 3.1 – The rise of green bonds: a 12-year history

The key feature of green bonds is that their proceeds are ring-fenced for spending on a limited number of project types. Most green bonds issued to date have been heavily oversubscribed, with many attracting interest from mainstream private investment firms as well as dedicated 'socially responsible' investors. Indeed, the World Bank's first green bond was issued in response to a request from a group of Swedish pension funds who wanted to invest in projects that helped combat climate change (World Bank, 2018).

Since the first green bonds were issued by the European Investment Bank (2007) and the World Bank (2008), more than \$750 billion has been raised by these instruments. Issuance in 2019 alone is expected to reach \$250 billion, according to the [Climate Bonds Initiative \(CBI\)](#). Despite its impressive growth, however, it should be noted that the green bond market remains a tiny fraction of the global bond market, which the [Securities Industry and Financial Markets Association](#) estimates to exceed \$100 trillion. Critics also warn of the risk of 'greenwashing' as several recent bonds that have been labelled green will be used to finance efficiency improvements in the oil and gas industry.

To date, the vast majority of green bond revenues have been directed towards renewable energy and energy efficiency projects. To give investors the opportunity to be more discerning about what they invest in, certification criteria have been prepared for forestry, land conservation and restoration and water infrastructure (including nature-based infrastructure). In addition, new certification criteria are being developed by the CBI specifically for agricultural and fishery projects. Eligible project categories for green bonds include several that focus on conservation of natural capital and/or nature-based solutions:

- Pollution prevention and control (including soil remediation);
- Environmentally sustainable management of living natural resources and land use;
- Terrestrial and aquatic biodiversity conservation; and
- Sustainable water and wastewater management.

Green bonds have opened the way to the creation of other labels to signal more specific investments. For example, the latest green bond from the European Bank for Reconstruction and Development (EBRD) is a \$700 million '[climate resilience bond](#)' that will finance 'climate-resilient infrastructure, business and commercial operations, or agricultural and ecological systems' in EBRD projects. It marks a departure from most previous green bonds which have mostly focussed on climate change mitigation (Bennet, V. 2019). The EBRD bond is the first to be aligned with the [Climate Resilience Principles](#) issued in September 2019 (CBI, 2019), which provide high-level guidance for governments, investors and banks to determine when projects and assets are compatible with a climate resilient economy.

Although most of the proceeds from green bonds are currently invested in renewable energy and energy efficiency projects, recent refinements to the standards and certification criteria from the Climate Bonds Initiative can help investors understand which bonds can lead to investments in natural capital and fund nature-based solutions to climate change and other environmental challenges. (See Box 3.1)

The popularity of green bonds looks set to be challenged, however, in coming years. In five years, our survey suggests the number of respondents investing in forestry and other land-based assets could exceed those holding green bonds, with sustainable agriculture investments only slightly behind. The number expecting to have green private equity investments and direct investments in natural capital projects is expected to double in that period. Rapid growth was predicted, over the

next five years, for other forms of investment in assets based on water, forestry and agriculture.

Encouragingly, the five biggest asset owners and managers that participated in the survey, each of whom has assets under management of more than \$200 billion, are among the most bullish in terms of their ambitions for sustainable investments over the next five years. One asset owner expects to see the share of its assets invested sustainably rise from less than half to 100 percent over that period and another expects an increase from less than 10 percent to more than 50 percent. The latter is currently focussed on green bonds and listed equities but anticipates allocating capital over the next five years to assets with natural capital benefits such as blue bonds, carbon credits and water credits/rights, as well as projects specifically intended to enhance natural



capital. Other major investors said they expected to increase their exposure to forestry and sustainable agriculture, as well as blue bonds.

One respondent – BNP Paribas Asset Management (BNPP AM), which manages assets of more than €420 billion – is now “moving ‘beyond carbon’ and working to embed natural capital research into its analysis of environmental, social and governance (ESG) issues,” said ESG analyst Robert-Alexandre Poujade.

Similarly, Dutch asset manager Actiam, which has assets under management of about €60 billion, has recently updated its investment policy. It now screens investee companies against the ‘planetary boundaries’ which “indicate the maximum of what society can consume from natural resources such as water, land and forests” ([Stockholm Resilience Centre website](#)).

These plans, by major pension funds, insurance companies and international asset managers reinforce evidence from other studies that there is growing appetite among mainstream investors for investments that protect or enhance natural capital. The 106 intermediaries (banks, consultants, etc) who took part in the survey also observed similar trends. Some 63 percent of these respondents said they have clients involved as either issuers or investors, in green bonds. They expected to see the greatest percentage increase between now and 2024 in water-related financial instruments, such as blue bonds, water credits/rights and water offsets.

“Overall, investor appetite for such projects is increasing, including from bigger asset managers and pension funds,” said Ferstandig at NatureVest. “But there is still a mismatch between expectations and reality (in terms of risk-adjusted returns),” she added.

Amit Bouri, CEO of GIIN, agrees. “We see the growth as coming from the larger asset owners – from institutions and endowments,” he said.

The asset categories expected to see the fastest growth over the next five years are all concerned with water. As shown in Figure 3-1, they include blue bonds, which raise capital to finance marine and ocean-based projects, abstraction rights in water trading systems and offsets that reward water owners for not using it. The number of respondents who already own blue bonds is expected to rise to from nine to 19 by 2024, with the seven holding water credits/rights rising to 13 and those with water offsets jumping from two to seven. Among the largest investors, it is particularly striking that five of the 17 expect to begin investing in blue bonds within the next five years.

In terms of equity investments, 43 percent of respondents said they invest in private equity and 26 percent in listed equities. But, of those with AuM of \$4 billion or more, for whom liquidity is more important, more than half hold listed green equities, slightly more than those investing in private green equity. By contrast, respondents who identified themselves as impact investors preferred private equity to investments in listed stocks.

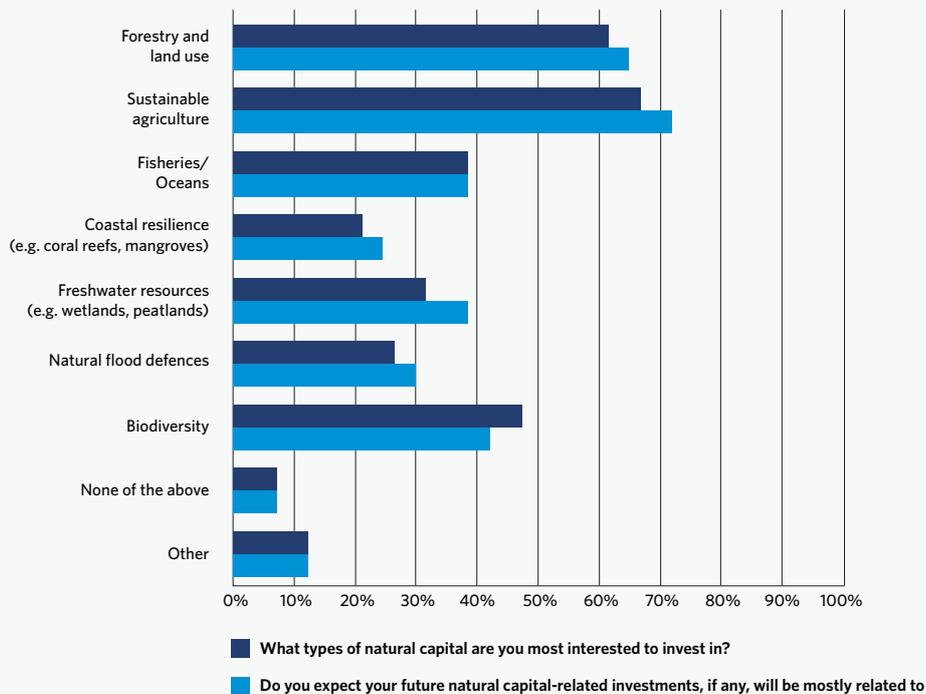
What types of natural capital are attracting greatest interest?

When asked “What types of natural capital are you interested to invest in?” Investors expressed most interest in sustainable agriculture and forestry/land-use projects, followed by biodiversity. But, when they were asked what natural capital investments they actually expected to make, while agriculture and forestry projects still topped the list, fewer investors named biodiversity (see Figure 3.2). This presumably reflects the perceived difficulty in measuring and generating returns from biodiversity gains. The Dasgupta Review and the proposed Task Force on Nature-related Financial Disclosures – if it comes to fruition – could help overcome these challenges.

The other significant difference between ambitions and expectations concerned freshwater resources (wetlands, peatlands etc) where investors seemed more confident of actually making investments. As discussed in Table 2-2, investing in freshwater resources can also be achieved through indirect means, by investing in forests or sustainable agriculture.

“Water is probably the next thing after carbon,” said Mitchell at the NCFI.

Figure 3.2 – Types of natural capital attracting most interest and expected future investment



Source: TNC/Environmental Finance survey 2019

Several respondents are planning significant new investments in the agriculture sector.

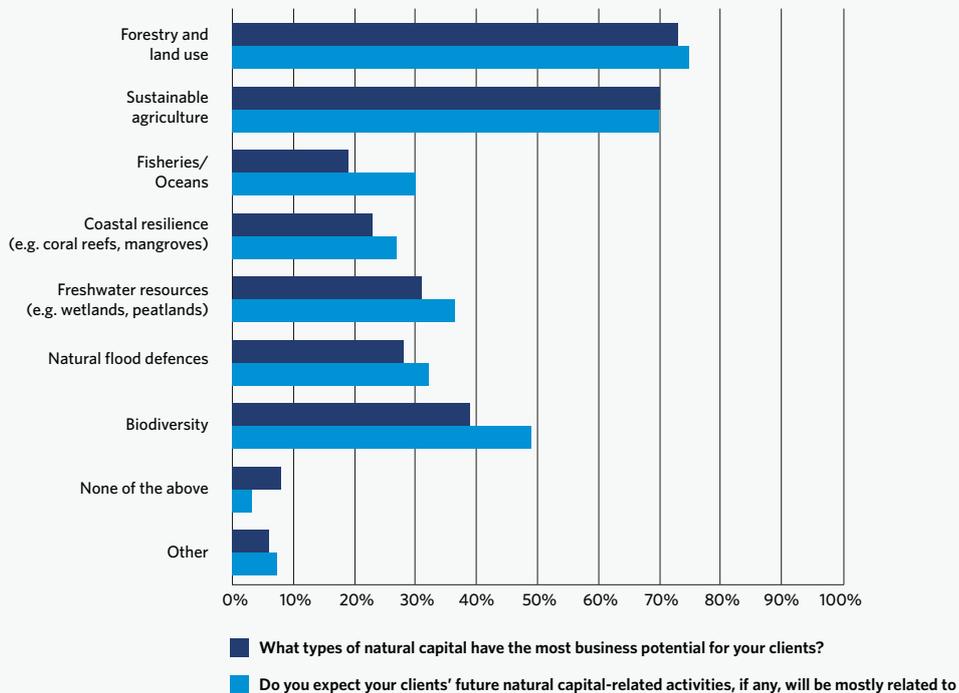
South Pole is launching a Landscape Impact Fund which will invest in nature-based projects to help corporate and other investors achieve climate change goals. It will aim to invest in projects of up to 500,000 hectares with “replicability, investability and quantified and measurable benefits” said

“Corporate investors are increasingly going beyond carbon credits to fund habitat, water and biodiversity improvements,” Dieterich said.

Urs Dieterich, land-use fund manager. It is likely to begin with philanthropic and corporate investors but will seek to generate returns from carbon credits, water improvements and other ecosystem services to attract a broader range of investors.

Through its impact investing unit NatureVest, The Nature Conservancy structures investments in natural capital. NatureVest is planning further direct investments in real assets and is also expanding into areas including working forests, oceans and sustainable infrastructure. Investments in real assets such as agricultural land are easy to compare with conventional real estate transactions, said Ferstandig from NatureVest. “This gives investors confidence”. Returns to the investors come from capital appreciation when the land is sold after upgrading the farms, restoring water courses and making other enhancements to the land.

Figure 3.3 – Types of natural capital with most business potential and those expected to attract most client activity according to intermediaries



Source: TNC/Environmental Finance survey 2019

Equity investor Impax Asset Management is also increasing its exposure to the food and agriculture sector. The company launched its Sustainable Foods Strategy in 2012 but it made slow progress until recently, said Ken Locklin, director, North America. Now, however, “the pool of companies with a focus on sustainability in this sector is much bigger,” so “Impax can build a portfolio here.” “The key trend in the past couple of years has been from processed to more natural foods,” explained research analyst Agne Rackauskaite. The natural foods category is growing at a compounded annual growth rate of about 9 percent globally, Impax calculates.

Like the investors, most intermediaries identified forestry, land-use and sustainable agriculture as the natural capital projects with the greatest business potential for their clients and also the sectors in which they are most likely to develop future activities (see Figure 3.3). Banks, consultants and other intermediaries seem to have more confidence in their clients’ capacity to make biodiversity-related investments. Only 40 identified biodiversity as having significant business potential for their clients, but 49 expect biodiversity to form part of their clients’ future natural capital-related activities.

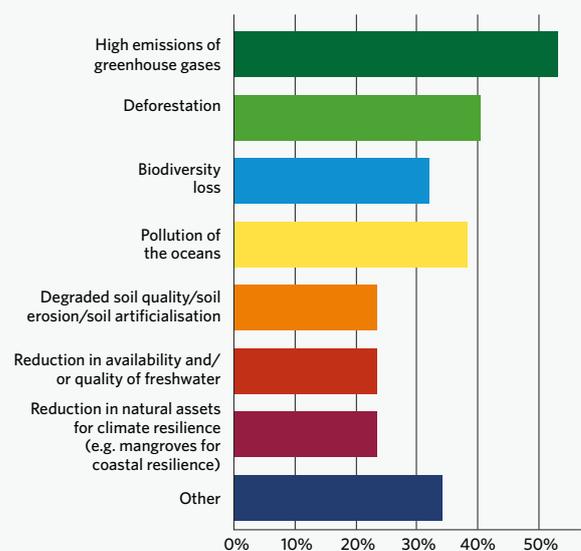
The survey finding that investors wanting to make an impact on natural capital expect to increase their forestry investments in coming years is not a surprise. It aligns with the [‘Investor statement on deforestation’](#) endorsed in September 2019 by 230 investors representing some \$16.2 trillion of assets. The statement says: “As investors, who have a fiduciary duty to act in the best long-term interests of our beneficiaries, we recognise the crucial role that tropical forests play in tackling climate change, protecting biodiversity and ensuring ecosystem services. “As investors, we see deforestation and the associated impacts on biodiversity and climate change as systemic risks to our portfolios and see the reduction of deforestation as a key solution to managing these risks.” A report from the Conservation Finance Network (CFN,2018) suggests that ecosystem services are becoming an increasingly important source of revenue for many mainstream forestry companies. The author noted that, at the [2018 RISI Forest Investment Conference](#), “it was evident that themes such as impact investing, conservation finance, and ESG criteria are garnering increased attention”.

Divestments are not only about GHGs: reducing natural capital destruction is gaining traction

As highlighted in Section 2, a key way for investors to support natural capital is also to divest from companies and projects causing its destruction. Priority areas for divestment, among our survey respondents, relate to high emitters of greenhouse gases, companies or projects causing deforestation, and those responsible for polluting the oceans. As shown in Figure 3.4, only 31 percent of investors said they are actively seeking to divest from companies or projects causing biodiversity loss.

Of the 17 investors managing more than \$4billion, however, only eight had clear divestment policies. Four said they had no policy on divestment, with a further two saying any divestment decisions were only made in response to client demand and another two saying they had a clear preference for engaging with companies rather than divesting.

Figure 3.4 – Investors’ divestment priorities from companies that cause destruction of natural capital



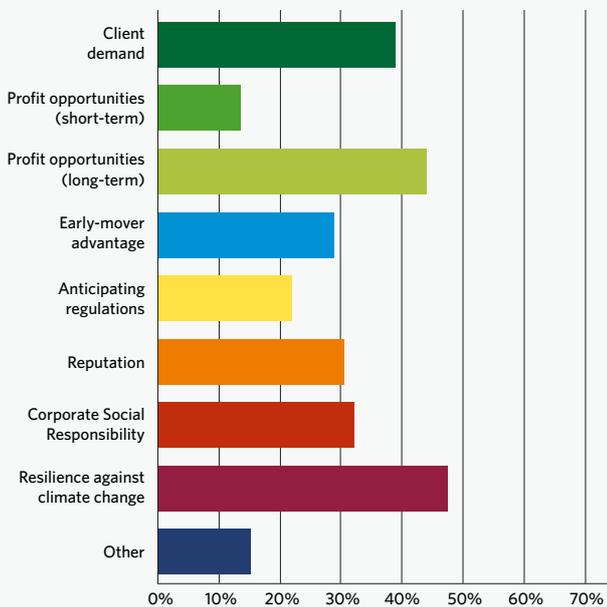
Source: TNC/Environmental Finance survey 2019

Motivations for investing in natural capital

The biggest single factor cited by investors for driving them to natural capital was ‘resilience against climate change’. Client demand and long-term profit opportunities were also identified as major drivers of current and future investments in natural capital (see Figure 3.5). More than 40% of respondents cited long-term profit opportunities as a driver, suggesting the conviction of NBIM that supporting natural capital can boost long-term returns, is widely held. (see Box 2.2)

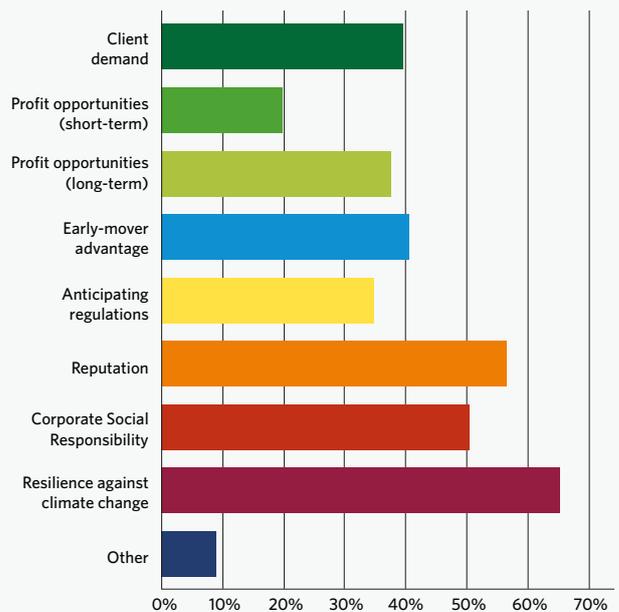
The importance given to climate change resilience as a driver of involvement in natural capital projects was even more pronounced in the responses from banks and consultants (See Figure 3.6). This echoes the growing emphasis by UN bodies and other public sector organisations on the need for climate change adaptation, after a previous heavy focus on mitigation. This ‘shift in society’ referred to by HSBC (HSBC, 2019) is attributed by some investors to science-based warnings about the deteriorating state of the natural environment from bodies such as the United Nations Framework Convention on Climate Change (UNFCCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

Figure 3.5 – Main drivers of current and future investments in natural capital by asset-owners and managers



Source: TNC/Environmental Finance survey 2019

Figure 3.6 – Main drivers of clients’ involvement in natural capital, as perceived by intermediaries



Source: TNC/Environmental Finance survey 2019

The need to preserve one’s reputation was also a significant motivation, particularly among the largest investors, which considered it as the most important driver. The fact that 58 percent of respondents from the intermediary cohort cited ‘reputation’ as an important driver was also in line with the many references to social and media pressure by the investors we interviewed. In recent months, messages from scientists and UN institutions have been powerfully relayed by figures such as Pope Francis, British television presenter David Attenborough and Swedish activist Greta Thunberg.

“Societal pressure and the media have been important drivers,” said Collette Grosscurt, responsible investment officer at Actiam.

“Young people and millennials are looking for ‘companies with a conscience,’” said Andrew Mitchell at the NCFI. “The smart money is paying attention to this.”

“Regulatory initiatives are playing a role, but much of the demand is generational,” agreed Ferstandig at The Nature Conservancy.

Only one in five investor respondents mentioned ‘anticipating regulations’ as a driver and only slightly more (23 percent) said regulation would encourage them to increase their natural capital investments. Similarly, ‘anticipating regulation’ was well down the list of drivers mentioned by banks and consultants as influences on their clients.

However, when asked about government-backed guidelines such as the TCFD and the EU Action Plan on Sustainable Finance, 25 percent said these well-publicised initiatives had already triggered a change in their investment policies and a further 30 percent expected them to do so in future.

Among those managing more than \$4 billion, three-quarters said there had already been, or was expected to be, some change in their investment policy as a result of these

guidelines. This is perhaps to be expected, as regulators are likely to focus on the largest institutions first if, as many expect, these recommendations and guidelines become mandatory.

An even more dramatic picture emerged among the intermediaries. Of the 20 large banks and securities firms that responded to the same question, nine said they had already made major changes to their policies in response to initiatives such as the TCFD and the EU Action Plan and a further three had made slight changes. These are far higher percentages than the overall figures for the 96 intermediaries who answered this question: only 30 percent of this cohort said they had already made a major change and a further 19 percent expected to do so. Only 11 percent expected these policy developments to have no effect on their company.

“Some institutions are waiting for their government to make policy/regulatory changes,” said Christoph Klein, managing partner of ESG Portfolio Management, a specialist German asset manager.

He praised as “brilliant” the pioneering French legislation known as Article 173 which requires large investors to disclose how ESG considerations influence their investment decisions. “France has proven this works,” he added.

“We need regulation on disclosure,” agreed a representative of one of the largest asset owners interviewed.

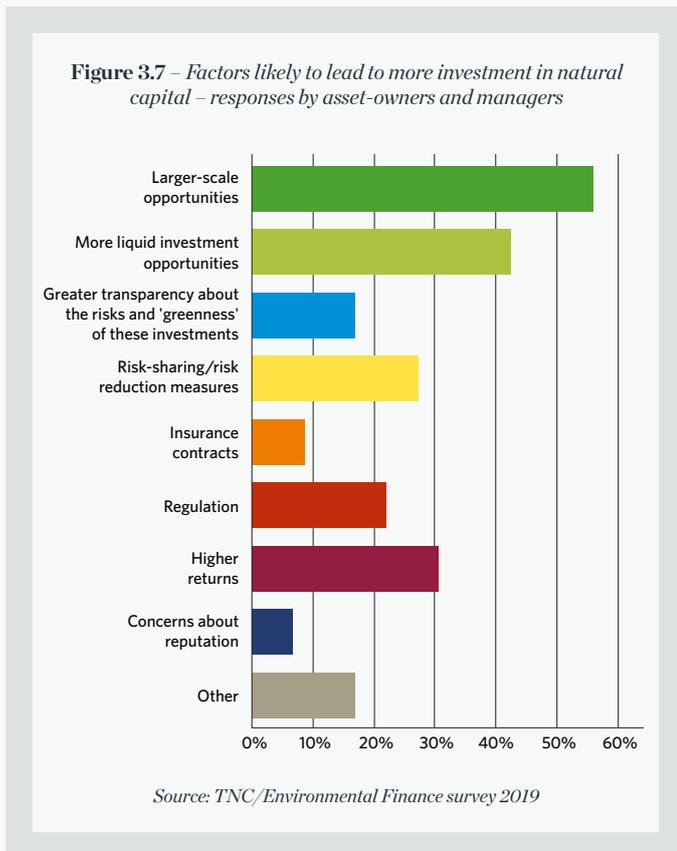
Of course, it should be noted that the sample sizes are relatively small and the respondents were self-selected. Nonetheless, it seems clear that the larger institutions – both investors and banks – are responding most rapidly to policy and regulatory developments.

The survey also revealed a growing awareness of companies’ dependencies on various forms of natural capital. More than two-thirds of intermediaries said they detected a rising awareness, although only slightly more than half of investors agreed. But this figure rose to 62 percent when they were asked specifically about reliance on water resources.

Main barriers to investing in natural capital

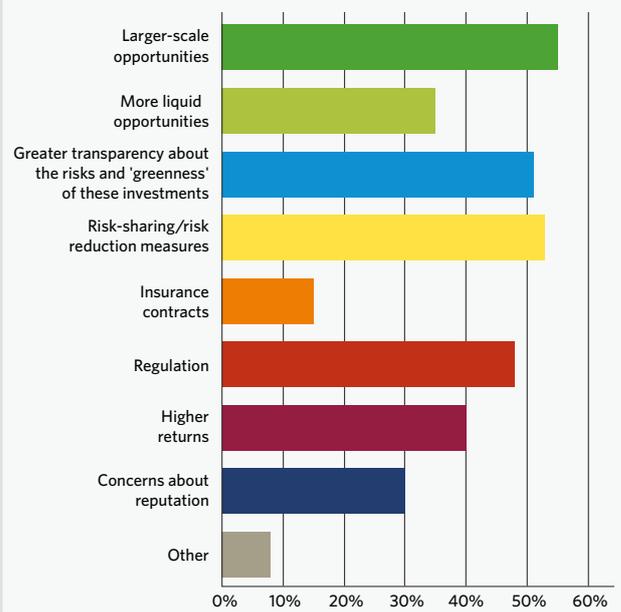
Access to larger-scale opportunities is the main factor that would encourage asset owners and managers to increase their exposure to natural capital investments (see Figure 3.7).

Greater demand from clients and more liquid investment opportunities were cited as other major factors that would encourage increased natural capital-related investments. The promise of higher returns was mentioned by 30 percent of respondents but this rose to almost half of the very largest investors.



The size of potential investments was also perceived by intermediaries – both banks and others – as the main factor limiting clients' green/sustainable investments. The main enabling factors required, they believe are: larger-scale opportunities; risk-sharing or risk-reduction measures; and greater transparency about the risks and 'greenness' of natural capital investments, as shown in Figure 3.8.

Figure 3.8 – Factors likely to encourage greater client activity in natural capital – responses by intermediaries



Source: TNC/Environmental Finance survey 2019

These projects “are really risky,” said Mitchell at the NCFA, “so the funds need de-risking. This means a role for government in providing first-loss guarantees, floor prices, or other support mechanisms. De-risking is really helpful.”

This was echoed by another respondent who called for “Government incentives to enhance returns and reduce risk,” in response to the question: “What would encourage your organisation to invest more in natural capital-related investments?”

“If we want to grow the natural capital sector, we need to make sure projects are being run on terms that are investable,” said Jon Williams, head of the finance sector team in PwC’s sustainability and climate change practice. Natural capital is “a classic market failure so it needs government intervention and/or regulation.”

Blended finance: pros and cons

Survey respondents were divided about the role that blended finance can play to generate more opportunities for natural capital investments. The critical role of blended finance in delivering sustainable development has been highlighted in a series of papers from the OECD which defines it as “the strategic use of development finance for the mobilisation of additional finance towards sustainable development in developing countries”. (OECD, 2018). Blended finance can be a key way to reduce risks for investors and kick-start market development.

Almost all the investors surveyed make at least some of their natural capital or other green investments directly. But more than a third also invest via intermediaries, such as pooled funds and a similar percentage do so alongside public finance institutions and/or philanthropic funds as part of ‘blended finance’ structures. In short, blended finance vehicles are not suitable for all types of investors, because they tend to be relatively modest in size.

To date, there have been about 30 blended finance transactions for conservation projects, amounting to a combined total of \$3.1 billion, according to the development finance organisation Convergence. The majority have been in the \$50 million - \$250 million range, with a median size of \$87.5 million (Convergence, 2019).

Althelia Funds, one of the private sector pioneers of natural capital investing, which is now owned by French asset manager Mirova, has adopted the blended finance approach. Althelia’s approach is to help farmers and fishing communities develop additional sources of revenue, arising from ‘environmental assets’, such as carbon credits generated from the restoration and protection of forests, ecotourism, the provision of clean water, sustainable fisheries, and crop pollination. Premium prices can be obtained for some of these assets by adopting certification programmes such as Fairtrade, the Marine Stewardship Council, Verified Carbon Standard, and the Climate, Community and Biodiversity Alliance. It says the provision of concessional funding or loan guarantees from public institutions such as development banks, can play a vital role in reducing the risk for private investors and thereby help

attract mainstream investors (Althelia Funds, Ecosphere+ and Mirova Responsible Investing, 2018). The Althelia Climate Fund 1 and the Althelia Sustainable Ocean Fund both combine capital from private institutional investors alongside anchor funding from public sector development finance institutions.

A mix of equity and debt can sometimes be beneficial in blended finance vehicles, according to some analysts. For example, Vivid Economics, in a report for the UK government (Defra, 2018) says:

“An equity fund model which blends grants and equity finance and which can, if it wishes, write debt, seems best placed to crowd in private investment to natural capital sectors. This solution relies on the use of public funding, grants and grant-equivalent tools to reduce transaction costs, reduce project risk and mitigate private investor risk. Initially, private investors are likely to be impact-oriented, because of high impact, low returns and small fund size, but mainstream investors could play a significant role in the medium and long term”.

Our survey revealed that large investors, with AuM of more than \$4 billion, are at present, more likely to participate in pooled funds aggregating capital from a number of private sector investors rather than in ‘blended finance’ vehicles by a factor of 4 to 1.

“Blended capital is popular because of the risk/return profile of many natural capital projects,” says Poujade at BNP Paribas Asset Management. “But it’s not in the firm’s DNA” because of its size. “It’s difficult to create suitable products for an asset manager of our size,” he explained.

Although blended finance emerged as the most popular mechanism for engaging in natural capital projects by almost three-quarters of intermediaries, this fell to just 50 percent of the 20 large banks and securities firms who responded. Bonds were much more popular for this group, followed by loans. A more recent innovation in the fixed income market – bonds whose coupons are determined by the issuer’s performance against environmental goals or the SDGs – has been strongly endorsed by PIMCO, one of the world’s largest bond investors.

“These exciting developments may soon allow fixed income investors to target thematic objectives ... in a portfolio that emphasizes bonds linked to the relevant SDGs,” it said in a recent research note (PIMCO, 2019).

Consensus is that private investments in natural capital need to increase

The survey revealed a clear consensus among investors – from the very largest to the smallest – that investments in natural capital should increase. None of them thought that this should not be the case, although it should be recalled that the respondents were a self-selected sample. The individual interviews provided some feedback as to how they thought this should be done, which helped inform the recommendations in the next section.

When asked for their views on what should be done to accelerate such investments from the private sector, most respondents called for more awareness raising about the role of natural capital and for increasing the profit opportunities it offers, as shown in Figure 3.9.

This suggests further education work is required, beyond the already considerable efforts of groups such as the Natural Capital Coalition (NCC), The Economics of Ecosystems and

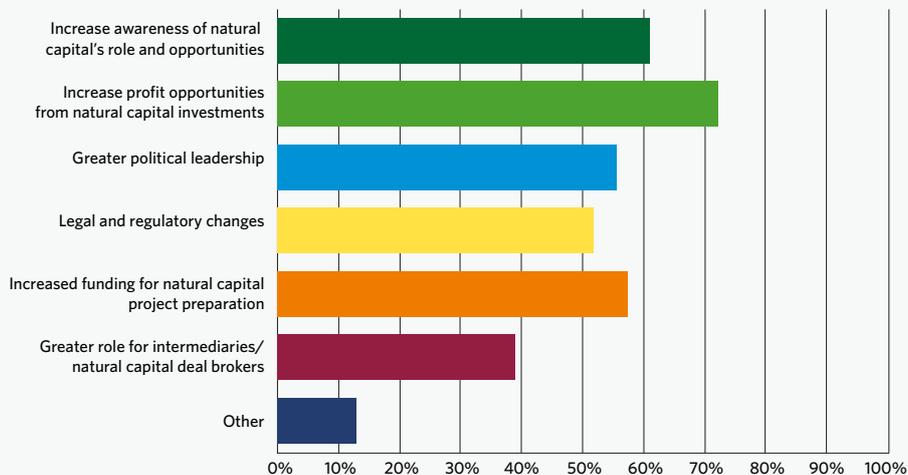
Biodiversity (TEEB), the Natural Capital Finance Alliance (NCFA), the Coalition of Private Investment in Conservation (CPIC) and others.

The survey revealed that investors (both large and small) mostly rely on in-house research for information on natural capital. The next most widely used sources, for the largest asset owners and managers, are dedicated ESG data providers and NGOs. Among the banks, in-house research and ESG data providers were identified as the main information sources, but more than half also cited NGOs, academics and governments/regulatory bodies.

Financial industry thinking on natural capital is starting from a low base, several respondents were keen to stress.

“Clients’ awareness of natural capital is clearly on the rise,” said Poujade at BNPP AM.

Figure 3.9 – Investors’ recommendations to accelerate private investments in natural capital



Source: TNC/Environmental Finance survey 2019

“But the industry needs to do a better job of defining it,” added Locklin at Impax. “It’s not a phrase which has resonance with North American clients”.

“We’re getting questions about climate change from pension funds and other investors, but we are having to inform them about other natural capital issues,” said another respondent from a large European asset manager.

Not surprisingly, given the large number of sustainability-focussed consultants among the respondents, more than 90 percent of intermediaries agreed that private investments in natural capital should rise. They, too, put most emphasis on the need for more education, but prioritised general awareness of the role of natural capital over awareness of profit opportunities. (see Figure 3.10).

Over half of all respondents, rising to almost two-thirds of intermediaries, also suggested regulatory changes and increased funding to help with the preparation of natural

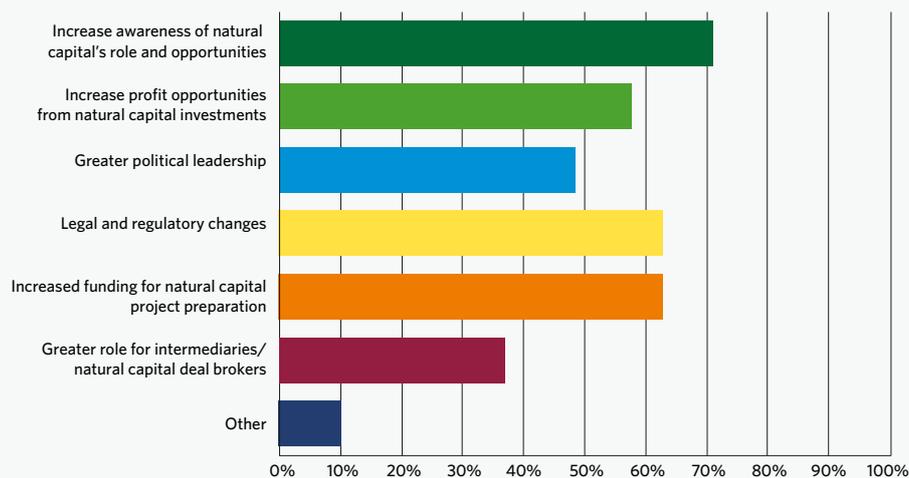
capital projects. Greater political leadership was identified as a priority by more than half of investors but was deemed less important by intermediaries.

Other suggestions volunteered by respondents included:

- “More collaboration between asset owners to develop new investment fund mandate requests”;
- “Building scalable business models”;
- “Developing rigorous metrics and assurance standards”;
- “Agreeing on a natural capital valuation methodology that can be integrated in investment/pricing models”;
- “Devising a better accounting approach to incorporate natural capital on a firm’s balance sheet”.

A variety of initiatives have been launched by the UN, national governments and private sector organisations to address the latter two points. These are discussed in more detail in Section 4, jointly with other key recommendations to accelerate investment in natural capital.

Figure 3.10 – Intermediaries’ recommendations to accelerate private investment in natural capital



Source: TNC/Environmental Finance survey 2019

4. Ways forward: what is needed to scale?

In this section, we identify key areas where action by governments, investors, project sponsors and intermediaries (such as banks, consultants and NGOs) will be needed to mobilise greater private finance for nature-based resilience. We highlight recent promising developments in this area and recommend that work accelerates in these areas:

1 VALUE & MEASURE: adopt natural capital accounting to keep track of stocks and flows

2 STRUCTURE: larger investment vehicles urgently needed to enable investment at scale

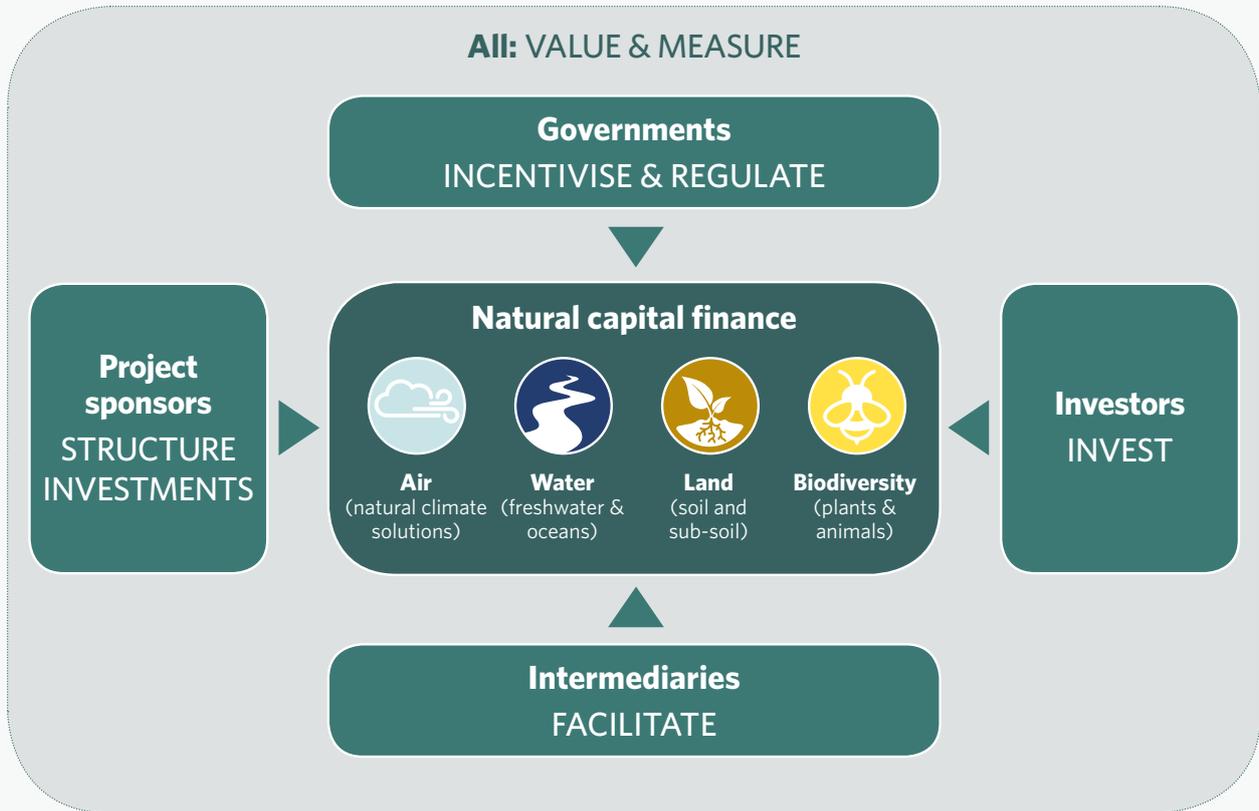
3 FACILITATE: intermediaries and information providers have a significant role to play

4 INCENTIVISE & REGULATE: the role of governments

5 INVEST!



Figure 4.1 – Recommended ways to accelerate investments in natural capital



Source: authors.

#1 VALUE & MEASURE: adopt natural capital accounting to keep track of stocks and flows

To truly reflect the real value that natural capital provides, bias introduced by outdated economic indicators such as GDP to measure human prosperity needs to be removed. The benefits from investing in natural capital to maintain its ability to deliver ecosystem services rather than destroying it need to be recognised urgently so as to reduce carbon emissions, stem the depletion of freshwater resources beyond their sustainable renewable yield and avert a total collapse in biodiversity.

The UK government’s Dasgupta Review may help by drawing attention to the economic benefits of biodiversity and the costs associated with biodiversity loss. This is the latest in a series of public and private sector initiatives attempting to recognise the value of natural resources in national or company accounts (See Box 4.1). These methodologies need to be mainstreamed and potentially made compulsory in all companies’ reporting so as to become a standard reference framework, rather than a “nice-to-have”.

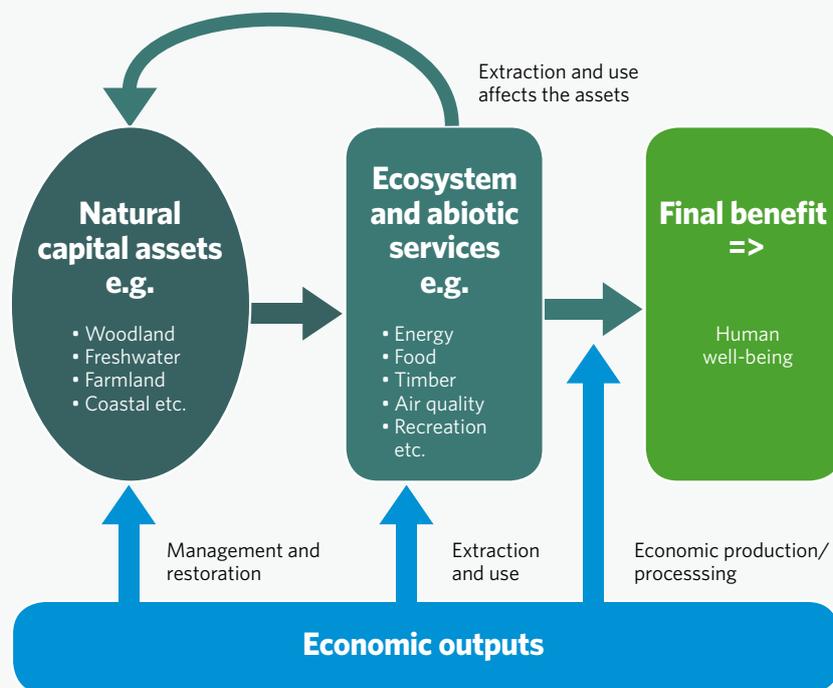
Box 4.1 – Methods for natural capital accounting

Natural capital accounts are a series of interconnected accounts providing information relating to the stocks of natural capital and flows of services supplied by them. The UK government classifies them into two main categories:

- *Physical accounts*, which classify and record measures of extent, condition and annual service flow; and
- *Monetary accounts*, which assign a monetary valuation to selected services on an annual basis and record an overall valuation of the natural asset's ability to generate future flows of services.

Another distinction is between asset accounts and service accounts. Figure 4.2 summarises how accounting is based on a distinction between the asset or stock (left hand side) that generates a flow or service (net of human and other economic inputs); this service may then be further processed in some way before its final use or consumption.

Figure 4.2 – The links between assets, services and final benefits



Source: Department for Environment, Food and Rural Affairs (Defra), Office for National Statistics

Private companies such as [Eftec](#) and [Vivid Economics](#) are now helping businesses and municipalities apply the concept as well as national governments.

The Natural Capital Protocol, developed by the Natural Capital Coalition, provides a decision-making framework to help organisations identify, measure and value their direct and indirect impacts and dependencies on natural capital. Sector guides on how to apply the protocol to particular industry sectors have also been developed. A finance sector supplement to the Protocol was published in 2017 and focuses on three key sub-sectors: banking, investment and insurance. (Natural Capital Coalition, 2017)

The [Natural Capital Protocol Toolkit](#), developed by the World Business Council for Sustainable Development in 2017, facilitates business uptake of the Protocol and sector guides by consolidating the tools, methodologies and approaches available for natural capital measurement and valuation.

#2 STRUCTURE: larger investment vehicles urgently needed to enable investment at scale

The survey confirmed feedback from other sources that larger investment vehicles are required if large mainstream investors are to allocate more capital to nature.

In the Credit Suisse report *Conservation Finance: an untapped investment opportunity* (Credit Suisse & McKinsey Center for Business and Environment, 2016) the bank's CEO, Tidjane Thiam, said scalability was one of the main obstacles to greater investment in natural capital. "Most projects are not replicable beyond a \$5 million threshold yet. This leads to high transaction costs" he wrote. Among his suggested solutions were:

- A more systematic approach to scaling and replicating projects in order to reduce high transaction and structuring costs; and
- Replicating homogenous project types and financing them through equity and/or debt or structuring multiple heterogeneous projects and then bundling them into a single financial product.

The *Coalition for Private Investment in Conservation (CPIC)*, which brings together investors, banks, project developers, NGOs and research institutions, is addressing this challenge. It has developed a series of 'blueprints' which it describes as "model financial transaction structures intended to help facilitate replicable investments in priority conservation projects". Each blueprint "standardises an individual transaction or set of transactions that share similar attributes into a model that can be adapted to local conditions". The aim is to facilitate replication and potential aggregation of transactions and thus accelerate sustainable conservation outcomes.

Some financial structures can attract up-front private financing to finance much needed investments in natural capital, as long as there are well identified revenue streams (from public and private sources) to repay investors once the environmental results have been realised and verified. Examples of such financial products include Environmental Impact Bonds for watershed green infrastructure and coastal infrastructure or Forest Resilience Bonds, as documented in (Trémolet et al, 2019). Other examples of innovative structures, including to finance marine protected areas, forest conservation and sustainable timber production or cocoa farm renovation and rehabilitation are presented in Annex A.





Investments of about \$10 million “are fine for NGOs and small impact funds” but large asset owners such as pension funds seek investment opportunities in the hundreds of millions, noted Mitchell at the NCFA. The green bond market provides an obvious potential solution, he suggested. To date, relatively few green bonds have involved natural capital projects, but the agricultural sector has multi-billion dollar needs and traditionally relies on bank lending. And “banks like doing bonds.”

An early example is in development by the Tropical Landscapes Finance Facility, an initiative of UNEP, the World Agroforestry Centre, BNP and Asian investment manager ADM Capital. It aims to raise a \$1 billion bond to finance a series of loans for sustainable agriculture projects in Indonesia. The first such project is a \$176 million sustainable rubber venture in Sumatra. An ‘offtake agreement’ for the rubber with French tyre maker Michelin will help repay the loan.

Appetite for such financing is developing among large agriculture-focussed banks, especially in France and The Netherlands, and the French government is taking a lead on biodiversity finance, said Mitchell.

Green bonds are already being widely used to fund large numbers of small-scale, but similar, projects through the process of ‘securitisation’. Numerous asset-backed securities have been issued to fund collections of small projects such as roof-top solar energy, residential energy efficiency and leases of electric vehicles. Such securities can transform thousands of illiquid assets into tradable financial instruments, with the payments to investors coming from the cash flows generated by the underlying assets.

Sean Kidney, CEO of the Climate Bonds Initiative, is one of many green bond specialists who see this as a major potential growth area for the market. (Climate Bonds Initiative, 2017). The OECD shares this view. In 2017 it estimated that annual issuance of green asset-backed securities linked to renewable energy, energy efficiency and low-emission vehicles could reach \$280 billion - \$380 billion by 2035.

A similar securitisation approach could perhaps be adopted to help finance large numbers of nature-based solutions to other environmental challenges, although the heterogeneity of natural capital investments is a major obstacle and calls for substantial investment in project preparation with support from intermediaries.

#3 FACILITATE: Intermediaries and information providers have a significant role to play

Most investors and banks believe there is a need for greater awareness of the role of natural capital and of the profit opportunities it offers. This is changing, with more data being made available to help track the degradation of natural capital and greater consideration of these issues in mainstream indexes and ratings aimed at financial markets.

The problem of a lack of local data about the natural environment is starting to be overcome thanks to satellite imaging, as highlighted in (WWF & Investec Asset Management, 2019). Even biodiversity data is becoming more accessible to investors, thanks to initiatives such as the [Integrated Biodiversity Assessment Tool \(IBAT\)](#). This web-based map and reporting tool provides rapid access to three of the world's biggest biodiversity datasets - the [World Database on Protected Areas](#), the [IUCN Red List of Threatened Species](#), and the [World Database of Key Biodiversity Areas](#). It enables users to create bespoke reports based on these datasets, defined by geographical area.

"The Asian Infrastructure Investment Bank (AIIB) uses IBAT at several points in the financing process," said Courtney Lowrance, the bank's principal environmental specialist. "In particular, IBAT allows users to compile a list of key biodiversity areas and potential species of concern within a specific radius of the project site."

The [Natural Capital Finance Alliance](#) is also helping in this area. Its [ENCORE](#) service (Exploring Natural Capital Opportunities, Risks and Exposure) is a tool that shows how environmental change creates risks and opportunities for businesses and those that fund them. It covers the whole economy, so financial institutions can apply it to any portfolio by sector or location.

Greater awareness of natural capital could increase following a recent wave of acquisitions, which have seen some of the leading ESG data providers taken over by large, well-established suppliers of indexes and ratings to the mainstream financial markets.

Examples include:

- Credit ratings agency Standard & Poor's bought UK-based ESG risk analysts Trucost;
- Index group FTSE Russell acquired French ESG advisory firm Beyond Ratings;
- Research and data provider MSCI purchased Swiss environmental data specialist Carbon Delta; and
- Ratings agency Moody's took a minority stake in Chinese data and analytics firm SynTao Green Finance.

This suggests that ESG issues, including the risks and opportunities arising from companies' dependencies on natural capital, will be gradually integrated into the analysis of debt and equity issuers that is provided to mainstream investors.

Intermediaries will also need to play a significant role going forward to structure investable products to channel private finance into natural capital. Many of the most active banks in the green bond market help their clients structure their debt offerings, as well as acting as underwriters and lead managers.

NGOs play a similar role on some of the more unusual bonds. Conservation International, for example, worked closely with the IFC on its innovative forestry bond (See Box A-1 in Annex A). The Nature Conservancy pioneered the blue bond model with the government of the Seychelles (see Box A-2 in Annex A) and most recently, the Conservation Fund issued its own green bonds which raised \$150 million to support working forests in North America. (The Conservation Fund, 2019).

Some banks also support NGOs in pilot projects. HSBC, for example, has worked closely with WWF on freshwater conservation projects in five river basins in Asia as part of the philanthropic HSBC Water Programme (WWF UK, 2017).

Several banks and asset managers, including Rabobank, ASN Bank, Yes Bank, Actiam and BNPP AM have also worked on case studies to help develop the Finance Sector Supplement to the Natural Capital Protocol (Natural Capital Coalition website).

#4 INCENTIVISE & REGULATE: the role of governments

Perhaps one of the most powerful findings from the survey is that private investors, particularly the largest asset managers, are responding strongly to government-backed guidance – which many expect to be cast into legislation – such as the recommendations of the TCFD. This begs the question as to whether more stringent guidance or regulation may be needed to accelerate natural capital investments.

Much of the recent environmental regulatory pressure has been aimed at reducing greenhouse gas emissions via carbon taxes and mandatory emissions trading programmes. However, these regulatory measures have been accompanied by a sizeable voluntary market in carbon offset credits. Similarly, regulations to reduce the carbon intensity of the energy sector – such as Renewable Portfolio Standards in the US and the Renewables Obligation in the UK – have been complemented by the development of industry initiatives such as energy service companies.

As the financial industry is becoming every day more competitive (particularly in the context of extremely low interest rates), investing in natural capital can provide a way for a firm to differentiate itself from its peers. Stronger regulation could level the playing field and reduce the need to take unnecessary risks in what remains a relatively new area, although some early movers fear this could lead to a loss of what they perceive as a competitive advantage.

It is clear that financial industry regulators are already paying close attention to sustainability issues. Increasingly, this work is being coordinated through the [Network for Greening the Financial System \(NGFS\)](#), a group of Central Banks and Supervisors working to develop environmental risk management in the financial sector, and “to mobilise mainstream finance to support the transition toward a

sustainable economy”. As mentioned earlier, the Natural Capital Finance Alliance and the NGFS are discussing the possibility of setting up a Task Force on Nature-based Financial Disclosures (TNFD) along the lines of the TCFD.

The European Union has led the way in this area and is set to continue to do so in the context of the Green New Deal heralded by the new President of the European Commission, Ursula von der Leyen. In 2011, the EU set itself the goal of halting the loss of biodiversity and the degradation of ecosystem services by 2020 and called for “an initiative to ensure there is no net loss of ecosystems and their services (e.g. through compensation or offsetting schemes) (EC, 2011). The European Commission’s Green Infrastructure Strategy (EC, 2013) aimed to ensure that the protection, restoration, creation and enhancement of green infrastructure become an integral part of development whenever it offers a better alternative, or is complementary, to standard ‘grey’ choices.

The EU Taxonomy, adopted in 2019, was also a step in the right direction. However, more will need to be done going forward, including through the adoption of mandatory targets (with associated public funds) in order for these aspirations to become reality. The possibility raised in the EU Action Plan of incentivising insurers and banks to hold ‘green’ assets and penalising them for holding ‘brown’ assets, via the regulatory capital they are obliged to hold, is already under active discussion (Huck.V, 2019).

Some central banks and financial regulators, having analysed the potential damage to financial stability of climate change, are now looking at the economic implications of biodiversity loss. An example is the recent report from the Dutch supervisory bank DNB, [Values at risk? Sustainability risks and goals in the Dutch financial sector](#) (DNB, 2018).

#5 INVEST

Private sector investors have a growing awareness of the importance of natural resources and an appetite to commit more funds to projects that conserve or enhance them.

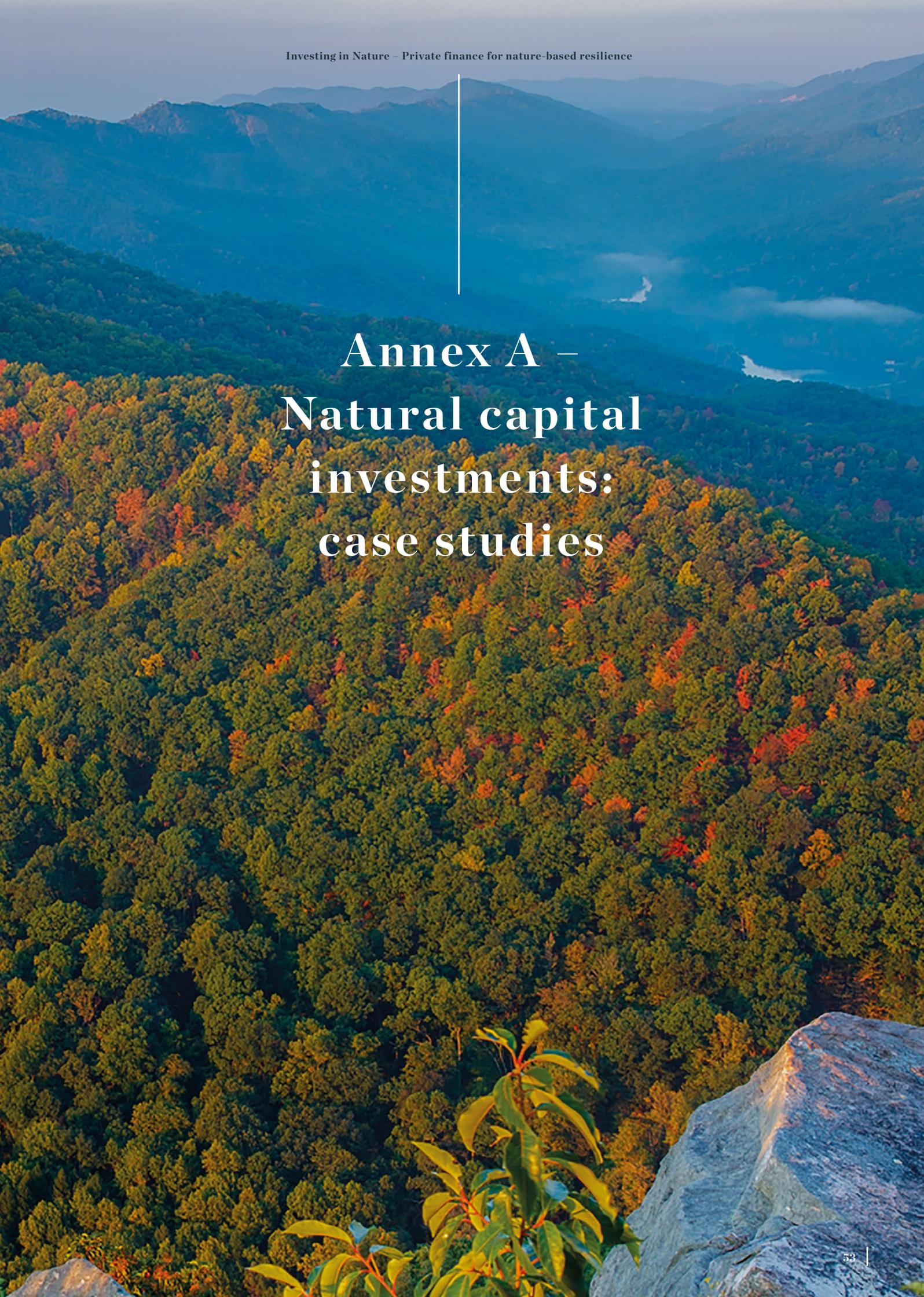
Recent developments in government and industry policy, new financial instruments and improvements in measurement and accounting techniques should help overcome the many

obstacles facing such investors and help bring about a tipping point in terms of private investment in natural capital.

To accelerate this progress, our main recommendations for key actors are summarised below.

Table 4.1 – *Summary recommendations to scale up private investments in nature-based resilience*

Actors	Recommended actions
Governments	<ul style="list-style-type: none"> • Recognise the importance of nature-based solutions in combatting climate change • Encourage companies to examine and disclose their dependencies on natural capital • Promote the adoption of natural capital accounting • Support moves to set up a Task Force on Nature-related Financial Disclosures • Adopt regulatory measures for mandatory investment in natural capital • Provide catalytic public funds to de-risk private investments
Project sponsors and companies	<ul style="list-style-type: none"> • Prepare natural capital projects with the explicit objective to attract private investment • Incorporate natural capital into mainstream investment strategies
Intermediaries (banks, NGOs, consultancies, universities, etc.)	<ul style="list-style-type: none"> • Help develop standards and principles that support natural capital investments • Support development of investable natural capital project pipelines • Work with natural capital project developers to design larger investment vehicles • Help mobilise blended finance resources
Investors	<ul style="list-style-type: none"> • Encourage investee companies to disclose their dependencies on natural capital • Include risks and opportunities associated with natural capital in asset allocation decisions • Work with debt issuers and bodies such as the Climate Bonds Initiative to boost issuance of bonds devoted to natural capital projects



**Annex A –
Natural capital
investments:
case studies**

Box A.1 – Investing in forests



**Cumberland Forest Project -
Use of carbon credits to generate
revenue streams for forests**

At 253,000 acres, the Cumberland Forest Project protects sweeping forest landscapes across Southwest Virginia and along the Kentucky and Tennessee border. By carefully managing these forests and enrolling them in the California Carbon Market and under Forest Stewardship Council certification, the \$130 million project aims to improve the forests' health while generating sufficient revenues to pay back the conservation-minded private sector investors who backed the project. TNC is a co-investor in the fund and will manage the properties.

**IFC forest bond – Preventing deforestation of
the Kasigau corridor in East Kenya**

An innovative \$152 million bond issued by the IFC in October 2016 is helping prevent deforestation of the Kasigau Corridor in east Kenya. Buyers included US teachers' pension fund giants CalSTRS and TIAA-CREF, QBE Insurance and emerging markets investor Treehouse Investments. A novel feature of the bond is that investors can choose to be paid in cash or in carbon credits, or a combination of the two. All the credits have been approved by the Verified Carbon Standard and the Climate, Community & Biodiversity Alliance. The transaction also benefits from a 'price support mechanism' from mining giant BHP Billiton. "If investors choose cash, then BHP takes the credits," explained Vikram Widge, head of IFC climate finance and policy. In addition to helping curb GHG emissions from deforestation, the project also protects an important migration corridor for endangered elephants.

Box A.2 – Investing in oceans and coastal resilience

Seychelles Blue Bonds – Debt-for-nature conversion to protect oceans

In 2016, the Seychelles completed an innovative debt-for-nature conversion with The Nature Conservancy. This deal raised funding to buy \$21 million of Seychelles' sovereign debt to refinance it under more favourable terms, and then direct a portion of repayments to fund climate change adaptation, sustainable fisheries, and marine conservation projects—as well as to create an endowment for the benefit of future generations of Seychellois. As part of the deal, the Seychelles committed to a comprehensive Marine Spatial Plan (MSP) to ensure the long-term sustainable health of the nation's entire marine area of almost 1.4 million square kilometers.



Coral Reef Insurance – Protecting coastal assets through insurance in Mexico

Reefs sustain the tourism industry of the Mexican state of Quintana Roo by providing valuable coastal protection against storms, reducing beach erosion, producing white sand, and attracting over one million snorkelers and scuba divers a year. The Nature Conservancy, the Quintana Roo State Government, the National Commission of Natural Protected Areas, Swiss Re and other partners devised the concept of a reef insurance policy. The policy secures funding to quickly repair damage to the reef following a hurricane, thereby preventing long-term damage and enhancing protection of the onshore community.

Private equity investments – Investing in sustainable aquaculture globally

Dutch investment fund [Aqua Spark](#) makes early-stage private equity investments in small to medium-size aquaculture enterprises producing fish, shellfish and ocean plants. It believes more than 50 percent of fish stocks are already fully exploited so there is no room for further wild fishing. The fund looks to take a minority stake of between 20 percent and 40 percent with investments ranging from \$250,000 to \$5 million. Since its launch in 2013, the \$96 million fund has attracted co-investments from giant institutions such as Mitsui of Japan and Temasek, the sovereign wealth fund of Singapore. It aims to have assets under management of \$1.3 billion by 2030.

“We don't need any government subsidies,” says CEO Mike Velings, “in general, these are all commercial businesses with great potential to show how we can do this in a sustainable way.”

Box A.3 – Investing in water security

Water Funds in Latin America – Freshwater protection for operational resilience in Latin America

Forests and grasslands filter, clean, and keep water flows steady in watersheds across Latin America. But when those forests and grasslands are degraded or destroyed, they lose their ability to provide people up- and downstream with clean water. Water Funds are an innovative way to finance the protection and restoration of forests and grasslands surrounding the watershed, to help provide clean water to millions in cities and villages across Latin America.

The Nature Conservancy has pioneered the use of Water Funds in several Latin American cities, and the impacts have already been enormous. The Latin American Water Funds Partnership – launched by TNC, the FEMSA Foundation, the Inter-American Development Bank and the Global Environment Facility – shares a common vision for the future: preserving and restoring watersheds and helping protect important water supplies in the region. FEMSA Foundation, funded by the Mexican beverage firm of the same name, committed \$5 million dollars over 5 years towards the development of Water Funds in the region, to help protect the resilience of the company's operations.

Storm Water Credits – Investing in cities resilient to urban flooding in Washington DC, USA

In an effort to reduce the polluting effects of stormwater in Washington DC, Prudential Financial invested \$1.7 million towards a new collaboration between NatureVest and Encourage Capital called District Stormwater LLC (DS). The project spearheads new strategies to support the country's first Stormwater Retention Credit (SRC) trading launched by the District in 2013 that created the market to trade stormwater credits. The enterprise will help finance the development of green infrastructure projects on properties across the city that measurably reduce stormwater run-off through proven distributed nature-based solutions. These investments will create credits to boost the SRC trading market.





Water trading – Setting up a Balanced Water Fund for the Murray-Darling Basin, Australia

The Murray-Darling Basin in south-eastern Australia produces around a third of the country's food supply and supports a diverse array of animals, plants and ecosystems. But over-use and climate change had seriously damaged the Basin's health. In response, a 'cap-and-trade' market was set up, based on the purchase and sale of water rights, in an effort to balance the varying needs of the multitude of water users in the region.

The Murray-Darling Basin Balanced Water Fund invests in this market to provide water security for farmers, while protecting wetlands that support threatened species and ecosystems. When water is abundant and agricultural demand is lower, more water is made available to the wetlands. When water is scarce and agricultural demand is higher, more water is made available for irrigation.

The fund is a partnership between The Nature Conservancy, the Murray Darling Wetlands Working Group and Kilter Rural.

Biodiversity mitigation banking – Investing in biodiversity offsets around the world

There are about 100 programmes around the world that use biodiversity offsets and compensation to achieve conservation goals, according to Ecosystem Marketplace. (Ecosystem Marketplace, 2017). Mitigation banks are projects that develop offset credits for purchase by parties responsible for environmental damage, with the goal of ensuring 'no-net-loss' of biodiversity. The largest banking market in the world is the US Aquatic Resources Compensatory Mitigation programme, which concentrates on wetland and stream offset credits. It transacted an estimated \$3.3 billion of credits in 2016, Ecosystem Marketplace said.

Box A.4 – Investing in land restoration and sustainable agriculture

**Green bonds –
Peatlands restoration in the Netherlands**

Almost 10 percent of The Netherlands is low-lying peatland and much of it is drying out because of intensive farming practices. This is causing GHG emissions to rise and buildings to subside. The Netherlands Enterprise Agency and IUCN have suggested that a green bond, probably issued by a AAA-rated public bank, could be used to finance re-wetting of this peatland. Rabobank is also understood to be developing a pilot bond of this type, in partnership with the NGO Wetlands International (Netherlands Enterprise Agency & IUCN, 2018).

**Sustainability-linked loans –
Sustainable agriculture globally**

A consortium of 20 banks, led by ING, BBVA and Rabobank have provided a \$2.1 billion Sustainability-Linked Loan (SLL) to Chinese commodities trader Cofco International. The interest paid by Cofco will fall if it hits certain pre-agreed sustainability performance targets, which include the sustainable sourcing of soybeans in Brazil and other crops. The deal was structured in alignment with the new Sustainability-Linked Loan Principles and the company's performance against the targets will be monitored by Sustainalytics. (LMA, 2019) (ING, 2019)

**Impact fund – Rehabilitation of deforested
land in Latin America and sub-Saharan Africa**

Moringa is a €84 million investment fund which concentrates on large agroforestry projects with high environmental and social impacts located in Latin America and sub-Saharan Africa. It makes equity and quasi-equity investments of between €4 million and €10 million. One recipient of its funding is [Floresta Viva](#), which plants Pupunha 'heart of palm' – a Brazilian delicacy – on deforested land. The company's CEO, Roberto Pini, claims the project is far more profitable than grazing cattle and that it can achieve internal rates of return of more than 30 percent.





Annex B – Methodology

This report's findings are based on three complementary lines of research:

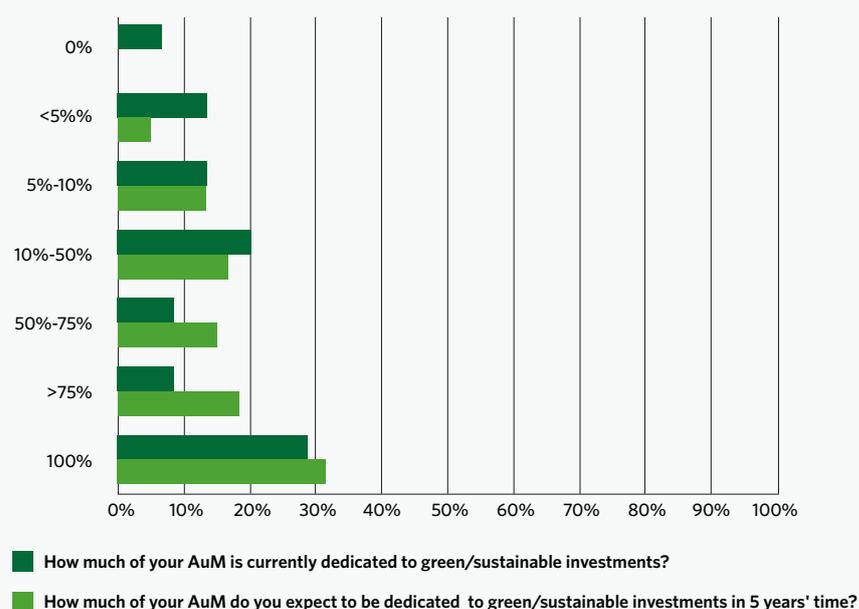
- *Environmental Finance* conducted a review of recent literature relating to sustainable and natural capital investments;
- A survey was designed by The Nature Conservancy, in partnership with *Environmental Finance*. Two related instruments were developed: one for asset-owners and investment managers; the other for intermediaries (mostly banks and consultancies). Each survey instrument consisted of 21 questions, in English, and was distributed via Survey Monkey to readers of *Environmental Finance* and other targeted participants. The survey instruments can be provided upon request. The main emphasis was on mapping investors' current behaviour and future plans. The survey for intermediaries was undertaken mainly to help identify their perceptions and assessment of trends in the market.
- *Environmental Finance* conducted 23 in-depth interviews with sector experts, to provide context and greater depth to complement the literature review and survey responses.

A total of 168 individual responses were received for the survey. Of these, 62 represented a wide range of asset owners or investment managers, from specialist impact investors managing less than \$100 million to major pension funds with assets under management (AuM) of more than \$1 trillion. The other 106 respondents included representatives from banks, intermediaries, specialised consultancy firms and non-profits.

Of the 47 asset-owners or investment managers who disclosed the size of their assets, 17 manage or own more than \$4 billion. Together, the 47 asset owners said their sustainable investments currently totalled at least \$270 billion but certainly no more than \$710 billion. By 2024, however, they expect their cumulative exposure to be at least \$1.2 trillion, and potentially \$1.8 trillion.

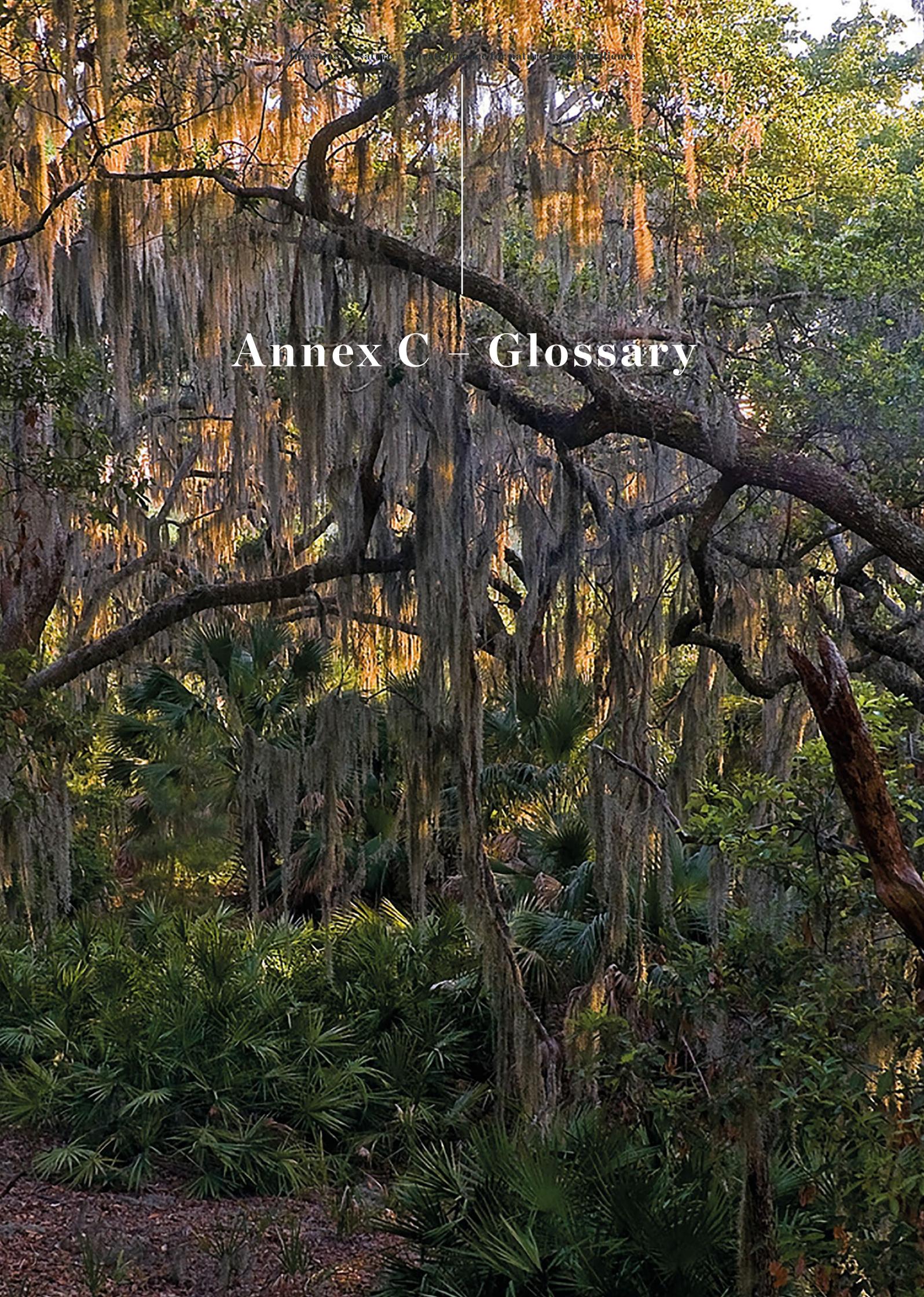
Of the large, 'mainstream' investors, six said green/sustainable assets currently represent less than 5 percent of their AuM. But, in five years' time, all expected this to have risen above 5 percent, with one predicting a jump to more than 50 percent (see Figure A-1).

Figure A.1 – Respondents' current and expected future AuM dedicated to green/sustainable investments



Source: TNC/Environmental Finance survey 2019

Annex C – Glossary



Biodiversity offset: Measurable conservation outcomes designed to compensate for adverse and unavoidable impacts of projects on biodiversity, in addition to prevention and mitigation measures already implemented.

Blended finance: The strategic use of development finance and philanthropic funds to mobilize private capital flows to emerging and frontier markets.

Bond: A debt security, under which the issuer owes the bond holders a debt and (depending on the terms of the bond) is obliged to pay them a fixed or variable interest rate and to repay the principal when the bond matures.

Blue bond: A bond to finance projects that support marine reserves and sustainable fisheries, which also classify as green assets.

Carbon credit: A credit awarded to projects that prevent or avoid the emission of greenhouse gases. Each credit represents one tonne of carbon dioxide. Some credits can be used to help companies comply with their targets in mandatory emissions trading systems. Others are used to offset companies' emissions on a voluntary basis.

Carbon footprint: The sum of greenhouse gas (GHG) emissions for a given company or group of companies comprising a portfolio.

Carbon neutrality: Achieving net zero carbon emissions by balancing GHG emissions with an equivalent amount sequestered or offset or buying enough carbon credits to make up the difference.

Clean energy: Energy from non-polluting sources, including solar, wind and water.

Climate change: A change in global or regional climate patterns, attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.

Climate risks: Risks stemming from climate change that have the potential to affect companies, industries and whole economies. including growing natural resource scarcity, impact on availability of key inputs (such as water and agricultural products), regulatory developments, and potential reputational damage.

Corporate engagement: Using shareholder power to directly influence corporate behaviour or decision-making. This includes actions such as communicating with company management, filing shareholder proposals and proxy voting.

Corporate Social Responsibility (CSR): A self-regulating business model that helps a company be socially accountable—to itself, its stakeholders, and the public. A company practicing CSR operates, in the ordinary course of its business, in ways that enhance society and the environment, instead of contributing negatively to them.

Divestment: The sale or disposal of securities or other assets based on corporate behaviour that is not aligned with specific environmental, social and governance objectives, values or convictions.

Ecosystem: A community of plants, animals and micro-organisms and their physical environment.

Ecosystem services: The benefits that people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as climate and flood control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services such as nutrient cycling that maintain the conditions for life on earth.

Environmental, social and governance (ESG): The factors and issues investors consider regarding a firm's sustainable business practices.

ESG-focused funds: Originally known as socially responsible investing (SRI) funds, portfolios that explicitly apply environmental, social and governance (ESG) criteria in their investment decision-making process.

ESG investing: Investing based on a company's exposure to ESG-related risks and opportunities, focusing on the ones most likely to have a material impact on investment performance.

Exclusionary screening: Avoiding companies involved in controversial businesses such as fossil fuels, oil, and tobacco, or other ESG-related criteria.

Governance: In the context of ESG, governance is a responsible investing factor dealing with management structure, board accountability and independence, executive compensation, audits and internal controls and shareholder rights.

Green: Generally refers to the consideration of climate change and environmental impacts in portfolio construction, i.e., investments in clean tech, renewable energy and energy efficiency.

Green bond: A fixed income security whose proceeds are ring-fenced for projects that deliver positive environmental outcomes.

Green infrastructure: A subset of nature-based solutions that intentionally and strategically preserves, enhances or restores elements of a natural system to help produce higher quality, more resilient and lower cost infrastructure services.

Green investing: An investment philosophy that considers the environmental impact of an underlying investment.

Green loan: Any type of loan instrument made available exclusively to finance or re-finance, in whole or in part, new and/or existing eligible green projects.

Impact investing: Intentionally seeking positive environmental and social outcomes alongside financial returns.

Low-carbon economy: An economy based on low-carbon power sources that has a minimal output of greenhouse gas (GHG) emissions.

Materiality: Information that is of the greatest significance in the investment decision-making process. Increasingly, ESG issues are being viewed through a materiality lens.

Nature-based solutions: Actions that protect, manage and restore natural capital in ways that address societal challenges effectively and adaptively. These include structural and non-structural actions, ranging from ecosystem restoration to integrated resource management, green infrastructure and more.

Natural Capital Declaration: A commitment by financial institutions to work towards integrating natural capital criteria into financial products and services. It was launched at the Rio+20 Earth Summit in June 2012.

Natural capital: The stock of renewable and non-renewable resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people.

Negative screening: A strategy of avoiding investing in companies that match pre-determined criteria – for example, if business practices are considered harmful to individuals or the

environment.

Net-zero carbon: Achieved by balancing a measured amount of carbon released with an equivalent amount sequestered or offset.

Paris Agreement: An accord within the United Nations Framework Convention on Climate Change addressing GHG emissions reductions, climate change adaptation, and finance, beginning in 2020. It is the first-ever universal, legally binding global climate deal and was adopted by 195 countries at the December 2015 UNFCCC conference in Paris. The agreement sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to below 2°C.

Positive screening: A strategy of identifying investible companies that match predetermined criteria – for example, having a culture of strong corporate social responsibility.

Principles for Responsible Investment (PRI): A UN-supported organisation that works to understand the investment implications of environmental, social and governance factors and to support its international network of investor signatories in incorporating these factors into their investment and ownership decisions.

Socially responsible investing (SRI): Originally, a term used interchangeably with environmental, social and governance (ESG) investing. Typically, legacy SRI approaches have emphasized exclusionary screening.

Sustainable development: The concept of meeting present needs without compromising future generations. It encompasses social welfare, protection of the environment, efficient use of natural resources, and economic well-being.

Sustainable Development Goals (SDGs): A set of United Nations goals with a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity.

Sustainable investing: Long-term investment in a company, asset or sector that makes a positive contribution to the environment, economy or society, in order to support or boost that positive contribution over time.

Sources: Trucost, TEEB for Business Coalition, Natural Capital Initiative, CDP, World Bank, World Resources Institute, M&G Investments, Nuveen / TIAA, IUCN, Climate Bonds Initiative, OECD, Wikipedia, International Capital Market Association



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Security Industry and Financial Markets Association:
<https://www.sifma.org/>

Stockholm Resilience Center website:
<https://www.stockholmresilience.org/>

Task Force on Climate/Related Financial Disclosures (TCFD) website: <https://www.fsb-tcf.org/>

The Nature Conservancy: <https://www.nature.org/>

Tropical Landscapes Finance Facility:
<http://tlffindonesia.org/about-us/>

Annex E –

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