



Demystifying Green Finance

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Introduction: Why this paper?

Valuing Nature is an interdisciplinary research programme and network of research providers and users. While finance and investment have not been a focus of the funded research under the Valuing Nature Programme, work has been done to identify key research and innovation needs for the insurance / financial services sector related to measuring and valuing natural assets.²

² RT3: Valuing and measuring natural assets for the insurance / financial services sector available at: <https://valuing-nature.net/business-round-tables>

There is a growing interest in the finance and investment community to understand nature better – both as an opportunity for investment and as a way to manage current and future investment risks. The rapid emergence of numerous taxonomies, frameworks and initiatives on the topic is a testament to this.

There is also a growing interest in the Valuing Nature Network to learn more about finance and investment. Evidence from Valuing Nature research has traditionally been used to make a business case for public funding and grants. Public funding is necessary but not sufficient to address today's environmental challenges. Given the scale of the challenges from climate change, continued degradation of the natural environment and loss of biological diversity, it is more important now than ever that private investment is also used to mitigate and adapt to climate change, conserve natural resources, and protect, restore and enhance biodiversity. Making the 'business case' for these so-called 'green investments' and making sure they pay off for all concerned is a major challenge.

³ 'Investable' means (finance) ready for investment – financially attractive and viable. This is not limited to financial return but also includes risk management, efficient ways of achieving no net loss / net gain of impacts; acquiring 'permission to operate' and building corporate social capital.

To begin engaging in this area, we need to be clear what 'green' finance / investment means; where it sits within the wider finance and investment sector; how to define and measure the environmental (and related social) impacts of it and any associated returns. We also need to improve our understanding of how investors assess whether a project is investable.³

This paper is the result of a collaboration of environmental and finance professionals and is intended to be a first port of call for finance related terms, key players and links to further reading and initiatives.

What is ‘green’ finance?

As the cover shows, a variety of adjectives is used to define what is essentially the use of financial instruments to enable investment that delivers a wider set of returns than money (financial returns) alone. At present there is no universal definition for green finance beyond a broad agreement on the distinctions between green, climate and sustainable finance. The recent UK Government’s Green Finance Strategy (2019) makes a distinction between:

- **Financing Green** – Accelerating finance to support the delivery of the UK’s Carbon targets and clean growth, resilience and environmental ambitions, as well as international objectives.

This is an opportunity for those who can provide ‘green’ projects and technologies to attract finance. **This is the focus of this paper.**

- **Greening Finance** – Ensuring current and future financial risks and opportunities from climate and environmental factors are integrated into mainstream financial decision making, and that markets for green financial products are robust in nature.

This is an opportunity for environmental professionals to provide evidence on risks and opportunities that should be incorporated in finance decisions. Work is already underway in this arena and a recent framework for integrating natural capital risk assessment for banks was published this year (NCFA, 2018).

Within the ‘financing green’ classification, a UNEP Inquiry Working Paper in 2016⁴ suggested that the following distinctions should be made: (i) sustainable finance which includes social, environmental and economic aspects; (ii) green finance which includes climate finance but excludes social and economic aspects, and (iii) climate finance which is a subset of environmental aspects. The same document makes a further distinction between financial instruments that address environmental issues as relating to “*the quality and functioning of the natural environment and natural systems*” and social issues relating to “*rights, wellbeing and interests of people and communities*”. The box below defines some of the most commonly used terms in this field, distinguishing between the flow of money (‘finance’) and investment strategies (‘investment’).

⁴ This is an old reference in this rapidly growing area but provides a good list of different definitions of the many related terms.

Box 1: A selection of terms used for ‘green’ finance / investment

Green (finance): (financing the green) the provision of targeted capital for the “development and implementation of green technologies/activities/projects [and] companies whose revenues derive from green technologies / activities” in addition to broader “untargeted” green finance activity for “companies that successfully manage environmental (as well as environmental, social and governance (ESG) – see glossary) risks and are thus perceived as more environmentally friendly than others” (European Commission, 2017).

Green finance is mainly understood to be ‘**climate finance**’ investing in low Carbon strategies (energy efficiency, low-Carbon technology, Carbon sequestration). But, in practice, it is broader and encompasses all nature-based solutions (e.g. wetland restoration, using natural processes to manage flood and coastal erosion risk, Carbon sequestration through habitat restoration).

Sustainable (finance / investment): the integration of sustainability considerations (social, environmental, economic aspects, and/or increasingly the UN Sustainable Development Goals – see glossary) into investment decisions (based on A4S, 2019). Investors may adopt different strategies to select the projects, organisations or sectors they invest in – see *Who Are the (Green) Investors?* section in this paper.

Responsible (investment): an investment strategy that integrates ESG criteria into investment decisions to mitigate risk and yield long-term results. The objective of responsible investment is a financial return with consideration of ESG criteria being secondary. However, ESG criteria are expected to have a positive material effect on financial returns (see also the Principles for Responsible Investment).

Impact (investment): is an investment strategy that aims to achieve financial returns whilst creating positive, measurable social and environmental impacts on/for society. These positive outcomes are paramount to impact investing.

Natural capital (finance / investment): investment in the conservation, restoration, management and enhancement of natural capital intended to provide a return to the investor whilst also resulting in a positive impact on natural capital (as referred to in the Greater Manchester Natural Capital Investment Plan (2018) and see also European Investment Bank, Natural Capital Finance Facility (undated)).

Nature-based solutions (finance of): investment in techniques that involve using nature as part of the solution to mitigate or adapt to climate change, to manage flood and coastal erosion risk, to provide healthy, social and liveable cities, water quality and supply management and for other purposes. Finance for nature-based solutions is encompassed in green finance and differs from natural capital financing in that it only involves investing in natural processes and techniques.

Conservation (finance): investment in conserving or enhancing the natural environment to unlock valuable benefits to nature and, from these, society.

It is difficult to measure the size of the market for ‘green’ finance since the term represents so many different types of investment and investment strategies. The global assets that are under management (AUM) was around US\$74 trillion in 2018 (BCG, 2019). The broadest definition of sustainable investment assets, which includes funds that mandate some reference to ESG factors and impact investing, has grown to around US\$31 trillion at the start of 2018 (Global Sustainable Investment Alliance, 2018), and is expected to continue to grow in the future (BCG, 2019). In other words, around 41% of total AUM have some reference/association to the broadest elements of ‘green’.

However, investments that this paper considers to be ‘green finance’ are likely to be several orders smaller. For example, the estimated size of the global impact investing market is only 0.7% of global AUM (GIIN, 2019), only a proportion of which will be ‘green’ (other investments include social impact investments). While 0.7% is too small a percentage to make a significant difference to the finance sector, it corresponds to a very large US\$ amount.

Green finance — How does it work? Who does what?

To understand how ‘green finance’ works, we first need to recap on how the investment sector and project finance work and the many actors within that world. This demystifying paper is, by necessity, a very basic introduction to finance, but the interested readers can follow the links in the **Further Reading section**.⁵

⁵ This is a rapidly developing field, and readers are encouraged to search for the latest updates.

How does finance work?

Financial markets facilitate the raising of capital (money) and match those who have capital (the lenders) with those who want it (the borrowers). This enables ‘liquidity’ – access to more cash than the borrower owns; and risk management (such as being able to spread the risk across different investments and to safeguard against risks).

Capital is raised from individuals’ savings and pension contributions; companies retaining profits; insurance companies; funds and endowments from not-for-profit (philanthropic and non-governmental) organisations and ‘high net-worth individuals’, and governments using the income generated from taxes and other earnings. Borrowers could be individuals, companies, not-for-profit organisation and governments.

Transactions in financial markets are made through securities (e.g. stocks, bonds) or into commodities (e.g. precious metals, agricultural products). In addition, investment can be directly made in projects (project finance) especially by international finance institutions like the European Investment Bank, International Finance Corporations and others.

Banks, investment managers, and international finance institutions facilitate such transactions alongside professionals (brokers, specialist advisors, accountants, lawyers); and credit ratings agencies (who assess the creditworthiness of individuals and businesses). Credit ratings agencies have a particularly important role in incorporating ESG criteria into financial decisions and hence influencing the likelihood of different green investments to be supported.

As well as being both lender and borrower, Government has two other roles: as a policy maker to incentivise different types of finance and as a regulator through independent bodies such as the Financial Conduct Authority (for financial services) and Prudential Regulation Authority (for banking services) in the UK.

Many other stakeholders have important roles in disseminating knowledge about greening finance and financing green. For example, professional bodies and business schools have an important role in including environmental and economic concepts and data in their curricula. There are also various initiatives and institutions set up to encourage the development of green finance (and indeed greening finance). A selection of these is provided at the end of this paper.

What's different about 'green' finance?

Green finance works like any other finance: capital is invested in projects, programmes and companies for environmental improvements alongside financial returns. Instruments for green finance / investment can be in:

- **Equity** – an investor could buy shares (and hence part ownership) in a company that is, for example, developing a new (low carbon or low other environmental impact) technology
- **Debt** – an investor could lend money to a company (or government) and expect it to be paid back with some interest. Green bonds are an example of such lending, the proceeds of which are used to generate specific environmental gains. Green mortgages – whereby households investing in energy or other efficiency improvements can get lower mortgages – are also a form of debt financing
- **Project finance** – an investor could put money into the design and delivery of a specific project. Payments for Ecosystem Services (PES) could be said to fall into this category as one party pays the other for the delivery of a specific project.

Who are the (green) investors?

Investors are not one uniform group – they have different appetites for risk, expectations for return and use different strategies to manage the portfolio of investments they are involved in. For example, equity investment carries more risk than debt investment (and has more influence over the borrower); the majority shareholder takes more risk (and also has more influence) than the minority shareholder; early stage investors in a project face greater risk than late stage investors and the same applies to investors in long term returns compared to short term.

Figure 1 shows the spectrum of different types of investor based on their financial and non-financial goals which, in turn, influence what kind of financial and other risks they are willing to accept. For example, philanthropists could forgo financial return; impact investors accept a higher financial risk in favour of positive (non-financial) impact and responsible and traditional investors will rely on business models with revenue generating activities and expect risk-adjusted financial returns.

Figure 1: Spectrum of investors Source: Adapted from eftc (2018) and Growing a Culture of Social Impact Investing in the UK⁶. Definition of ‘sustainable’ is varied but the recent EU Taxonomy (2019) provides detailed descriptions and criteria on sustainable sectors and activities.

Investor Type	Traditional	Responsible	Sustainable	Impact			Philanthropy
Financial Goals	Deliver competitive risk-adjusted returns			Tolerate higher risk	Tolerate below market returns	Partial capital preservation	Accept full loss of capital
Non-financial Goals		Investment activities ‘do no harm’ / sustainable		Additional impact of investment			

⁶ <https://www.gov.uk/government/publications/growing-a-culture-of-social-impact-investing-in-the-uk>

⁷ Some of the labels include passive, systematic, fundamental active, credit, venture capital and private markets investors – but further detail on these is beyond the scope of this paper.

There are different types of investors⁷ within each category in this spectrum, using different strategies to select the projects, organisations or sectors they want to invest in. Government is not shown in this spectrum, but it has an important dual role in green finance: (1) as an investor (“public money for public goods”) and (2) underwriting some of the risks in green finance.

Different investment selection strategies can include:

- **Negative/exclusionary screening** (eliminating companies in industries or countries deemed objectionable)
- **Norms-based screening** (eliminating companies that violate some set of norms)
- **Positive/best-in-class screening** (selecting companies with especially strong ESG performance)
- **Sustainability-themed investing** (such as in a fund focused on access to clean water or renewable energy)
- **ESG integration** (including ESG factors in fundamental analysis)
- **Active ownership** (engaging deeply with portfolio companies)
- **Impact investing** (looking for companies that make a positive impact on an ESG issue while still earning a market return)

Borrowers are expected to have sufficient technical and governance structures in place to meet the screening criteria and conditions of finance. Some environmental risks such as unexpected extreme weather events are, however, beyond the control of an individual borrower. Government (or indeed other parties) could act, in effect, as insurers in these cases. ‘Blended finance’ is the term often used when government and private sector investment come together to invest in, and share the risks of, a specific project or programme of projects (Vivid Economics and Environmental Finance, 2018).

Where does one go to for green finance?

The doors to traditional funding sources such as public funding, research funding or the Heritage Fund are reasonably transparent and advertised. The answer for green finance is not as straightforward.

⁸ Greater Manchester Combined Authority Natural Capital Investment Plan recommends the setting up of an Investment Readiness Fund to help overcome these barriers for private investment in the city.

Banks, asset managers and others show their interest in green finance in their direct involvement and their publications. So, it is possible to pick out some potential (green) investors. However, individual environmental projects tend to be too small to attract such investors. This is in fact a major barrier to green finance. It requires pooling or packing of individual projects to create sufficient scale and variety (of returns and risks). It also requires preparing individual projects to ensure that they are investable⁸. The capacity to do this is not yet fully in place, but action is still possible:

- First speak to finance colleagues, if there are any within your organisation
- Look for links to advocates for green finance and various initiatives, institutes and working groups operating in this space. Some of these are listed at the end of this paper
- Develop or seek examples to help illustrate the advantages of green investment

⁹ There are many project finance examples but we assume readers are more familiar with those examples.

We have provided three examples here. In addition, A4S (2019) and EIB (undated) have several examples from around the globe⁹ that may be helpful.

Example 1: **Dutch Sovereign Green Bond**

The Dutch Treasury State Agency issued a bond on 21 May 2019. The auction to purchase the bond reached over € 21 billion in just over 90 minutes, even though DTSA was looking for funding of just under €6 billion. The bond will ‘mature’ (pay back) in 2040.

The proceeds will go to onshore solar electricity generation facilities; offshore wind energy; water infrastructure (engineered infrastructure for flood defence and water distribution; nature-based water infrastructure including flood defence); low carbon buildings (residential property energy efficiency upgrades) and low carbon land (public) transport infrastructure.

What is interesting about this mix is that it includes projects with direct financial returns (e.g. energy), financial savings (e.g. efficiency gains) and public benefit returns (flood defence). It is also a mix of low carbon, engineering and nature-based solutions. This packaging of different projects with different returns is an important selling point for a bond.

A detailed assessment of the bond, its certification and links to other websites can be found on Climate Bonds Initiative website:
https://www.climatebonds.net/certification/netherlands_sovereign

Example 2: **Green Finance in the UK Water Industry**

In August 2017, Anglian Water issued the first GBP green bond worth £250 million. The proceeds from the bond are to be spent on capital and maintenance costs of sustainable water management and recycling projects to reduce climate footprint and to use nature-based solutions. <https://www.anglianwater.co.uk/siteassets/household/about-us/pr19-10c-green-bond-annual-report.pdf>

In April 2019, Yorkshire Water issued the first GBP sustainability bond – a sustainability bond is broader than a green bond, adding social categories which allow the company to include areas such as support for vulnerable customers and social tariffs. Investors have placed £1.9 billion of bids for this bond that will mature in 2041. https://www.keldagroup.com/media/1105/yorkshire-water-sustainability-bond-assessment_11-april-19-v2.pdf

The Thames Tideway project has also issued a green bond recently – details of which can be found here: <https://www.tideway.london/media/1595/green-bond-framework.pdf>

Simon Gates, UK Head of Corporate Coverage and Transaction Banking, at the BNP Paribas Bank – has this to say on these developments:

“Cynics may argue that many of these areas are business as usual for a UK Water Company – this is partly true, as efficiency projects and affordability are clearly in the scope of regulation. However, the broader ESG frameworks being adopted by these businesses demonstrate a more holistic approach to their strategy than merely following the demands of the regulatory regime. This needs to be lauded as a sign of an industry getting its act together on ESG. It is therefore quite feasible that this sector could be running entirely with sustainable finance in the near future.”
<https://www.businessgreen.com/bg/opinion/3075488/water-companies-take-up-the-sdg6-challenge>

Example 3: **Sustainability linked Credit Facility**

Olam International is a leading food and agri-business. It recently secured Asia's first sustainability-linked club loan facility of US\$500 million which links the interest rate on the loan to achieving clear sustainability targets. Olam appointed 15 banks to provide the facility in equal parts, with ING as the sustainability coordinator. The loan has a 3 year term.

Under the facility, Olam is committed to meeting targets for a range of ESG metrics, which are independently assessed. The metrics are tested on an annual basis and if the pre-set improvement targets are achieved, the interest rate on the loan is subsequently reduced.

Source: A4S (2019)

Features of an investable project

As these examples show, green finance brings multiple sources of finance together for projects that work for people, profit and the planet. To create such projects that deliver benefits across a range of interests, each stakeholder must look beyond their traditional interests to understand the needs of the others.

However, not all projects can deliver for people, profit and the planet – in fact the key problem is that projects that need finance now are those that may deliver for people and the planet but not (as much) financial returns. Therefore, it is important to use the word 'investable' guardedly for projects with proven revenue streams and necessary governance to ensure delivery.

If you need to prepare a project for financial support, consider the following actions to help increase its appeal to investors:

- **Be clear about the project.** Present a well-documented business case and plan, with a good governance system, strong business models and associated financial mechanisms to produce a compelling proposition showing what makes this project different and how it will generate financial and environmental returns, i.e.:
 - The requirements for finance: amount, time and timescales for capital repayment
 - Commonly accepted methodologies for environmental measurement, monitoring and verification of impact (or returns), reporting additionality¹⁰

¹⁰ Natural capital accounting which identifies the beneficiaries and benefits of maintaining natural capital assets can be useful when making a business case for public and philanthropic investment.

- Clarity on expected financial returns: revenue generated (e.g. sale of timber from tree planting which also sequesters carbon) or costs avoided (e.g. investing in peatland conservation could reduce pollution and discolouration downstream, saving water company treatment costs)
 - Long term policy and regulatory direction and how the project(s) fits within these
 - The risks associated with the investment: especially revenue streams from third party beneficiaries, immature markets, length of capital holding to realise returns, uncertainty in outcome, novelty of technology, complexity of deal structure etc.
 - The parties involved in the investment and their capacity to manage the investment and secure returns, their reputations and track records
 - Where the project is in the typical investment cycle and where external advisor input fits in to that with considerations of liquidity, scalability, replicability, information asymmetry and maturity mismatch, i.e. the project is more or less developed than where it needs to be for a particular investor
- **Get to know the potential investors:**
 - Their motivations for investing in the project(s) and hence expectations for (all types of) returns (e.g. compliance, risk management, enabling licenses to operate and other motivations)
 - Scale at which they wish to invest: it may be necessary to package complementary projects together for joint finance in cases where the level of investment you need is smaller than what is on offer
 - What their acceptable levels of perceived risk are, i.e. are they able to lose any money, what is the minimum financial return expected?
 - What does ‘robust evidence’ (or impacts, risks etc.) mean to them in the context of demonstrating your internal governance or the measurement of your impacts?

European Investment Bank (undated) has a longer list of factors project providers should take into account.

Top tips:

- Create a ‘pitch book’ and ask financial experts to comment on it. Language and presentation are key.
- Focus on the green aspect and the distinguishing factors: do they require particular treatment / support? What are the particular challenges?
- Combine your project with other projects into a ‘package’ that is sufficiently big for finance and has a spread of environmental, financial and other risks.

It will also help to understand the current drivers for and barriers to green finance when preparing investable projects.

Drivers for ‘green’ finance

“The health of our planet and the health of our financial system is inextricably intertwined. Finance has the power not only to change our economy, but also the way we live – and the time to act is now.”

Sir Roger Gifford,
Chair of Green Finance Institute (UK) (July 2019)

The readers of this paper are well aware that the environmental challenges of today need large and sustained financial resources and that public finance is not sufficient, declining or uncertain. But what motivates private investors to finance green and green finance?

Policy drivers. The following are only some of the many relevant global, European and the UK policy drivers over the recent years:

- **2014:** Sustainable Development Goals of the UN increased the interest in the impacts of investment on each goal as well as the need to finance activities that will make achieving the goals a reasonable possibility¹¹
- **2015:** Finance is as a key element within the UNFCCC Paris Agreement, which has a goal of, “making finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development”¹²

¹¹ <https://worldinvestmentforum.unctad.org/financing-for-the-sdgs/>

¹² <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

¹³ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en#hleg

- **2016 – 2019:** The European Commission set up a High Level Expert Group (HLEG) on Sustainable Finance¹³ to steer public and private capital towards sustainable investments; to identify the steps that financial institutions should take to protect the stability of the financial system from risks related to the environment and deploy these policies on a pan-European scale. The group published its final report in January 2018, followed by an EU Taxonomy in July 2019 of economic activities which can make a substantial contribution to climate change mitigation and adaptation and includes criteria to do no significant harm to other environmental objectives. This is set to help determine what activities are classified as ‘green’ when investing.

¹⁴ <https://www.fsb-tcf.org/>

- **2017:** The Taskforce for Climate Related Financial Disclosures (TCFD)¹⁴ recommends that businesses report on climate related risks to their operations in a consistent, comparable, reliable, clear and efficient way and provide decision-useful information to lenders, insurers, and investors. Recommendations by the TCFD created great interest amongst large companies and investors and have been followed by progress reports and a knowledge hub of tools and information.

- **2018-19:** The UK government commissioned a Green Finance Task Force which reported in March 2018 which led to the formation of Green Finance Institute¹⁵ in July 2019.

¹⁵ <https://www.greenfinanceinstitute.co.uk/>

- **2019:** The increasing prevalence of Carbon pricing. World Bank (2019) has identified at least 57 jurisdictions using Carbon pricing mechanisms around the world with this number expected to increase in future.

- **2019:** Change in UK Pension rules to come in this year will mean ESG issues need to be taken into account by pension trustees.

Increasing demand for greener alternatives. The increasing public awareness of the urgency of climate change and environmental degradation is driving action from within the sector. Pension funds, pension beneficiaries and individual investors are increasingly asking for transparency, greener and more ethical investment options. This creates a group effect amongst investors, increasing numbers of whom now want to be involved in low Carbon options and signing up to various initiatives. Specialist green finance investment and analysis companies are being bought up by intermediaries like credit rating agencies to service this increasing demand.

Increasing awareness of risks and opportunities. Ignoring ESG issues is a risk to financial returns (e.g. shortage of raw materials and other inputs to production, damage to operations from extreme weather events, reduction in demand for goods and services). As information on these risks builds up so do attempts increase to both green finance and finance green. For example, see ENCORE tool released in 2019 for a broad understanding of environmental dependencies associated with different economic sectors.

Incorporating ESG issues into investment decisions is not just about managing risks, there are also additional opportunities from investing in natural and social returns in terms of encouraging innovation, analytics and low Carbon technology, working with civil society and providing intellectual leadership.

Barriers to ‘green’ finance

“This transition [of the finance sector] will be a monumental undertaking. It will be the single greatest social and economic transformation in human history. It will impact every sector of the economy and it will require the reallocation of trillions of pounds of capital. Sadly, there is no graduate textbook on how we do this. The world has never undergone a zero Carbon transition”.

Dr Rhian-Mari Thomas,
Chief Executive, Green Finance Institute, July 2019.

The very basic description of the finance sector above hides a complex web of actors and transactions. The sector depends on a strong regulatory and policy context and common metrics and terms that make communication and comparison easier. Green finance (and financing green) adds a further layer of complexity with different issues to consider and metrics and terms to learn. In addition, there is the fundamental issue of missing markets.

Missing markets and regulation. For investments in reducing Carbon emissions, there are at least nascent carbon markets, trading and prices are emerging. However, the direct financial cost of burning a forest or making a species extinct is typically zero and hence there is a fundamental barrier to investing in prevention or reversal of such non-Carbon aspects of the environment.

Complexity and mindsets. It is relatively straightforward to predict and monitor the reduction in Carbon emissions through investments in energy efficiency and low Carbon technologies. It is more difficult to predict sequestration of Carbon. It is still more difficult to measure and communicate the impacts of investments on natural capital. First, there are many metrics compared to one, i.e. tonnes of Carbon. Second, changes are context and location specific, and overly simplifying this complexity could lead to unintended negative consequences. Third, costs and benefits are distributed over several stakeholders and there is often mismatch between stakeholders paying for and benefiting from such investments.

While complexity is a genuine issue, there is also a mindset that believes ESG and financial performance are mutually exclusive. A shift in the mind set of all involved in terms of risks (perception and tolerance) and return (expectations) is necessary, if green finance is to become more widespread. For example, investing in green could be riskier to start with but as experience grows so will our ability to manage complexity and risks. Developments in environmental assessment, economic valuation and natural capital accounting (including better communication of what evidence we already have) will continue to address this barrier.

Uncertain / low / no financial returns. Investing in reducing Carbon emissions through efficiency and new technologies has a more or less direct link to financial returns – through income generation (sale of technology) and cost saving (lower energy bills). Links between investing in ‘green’ and financial returns are more difficult to establish both in time and space. Furthermore, green investments are often associated with regulatory and environmental risks such as property rights to land and conservation; and impacts of extreme weather on habitat creation.

As mentioned above, the public sector could address this barrier by underwriting some of the risks. For example, a private sector provider of a nature-based solution would take responsibility for delivering predetermined outcomes up to a 1 in 30 year storm event and the risks due to more severe impacts would rest with the public sector. Public sector funding will still be needed for providing public goods, which, by definition, do not yield private (financial) returns and towards technical assistance (e.g. monitoring and research) to reduce uncertainties over time.

Scale. Environmental projects tend to involve relatively small quantities of investment funds that may discourage private finance to get involved in a coordinated way. To issue a bond could cost so much that only bonds valued several hundreds of £ millions are worth issuing. Bringing several environmental projects together as a single investment package is likely to make them jointly more investable as mentioned above.

Trends in the global economy. The influence of mainstream finance and trade policies and commodities trading cannot be ignored. While commodity prices continue to incentivise large scale environmental degradation, relatively small 'green' investments will not be sufficient to tip the scales in favour of nature.

Glossary

The glossary presents a selection of financial terms and more general terms with particular use in finance. Definitions of the relevant types of investment are provided in Box 1¹⁶.

Term	Definition/Explanation
Asset	An asset is a resource with economic value that an individual, corporation or country owns or controls with the expectation that it will provide a future benefit. It could be tangible (property, machinery etc.) or intangible (patent, reputation etc.). Physical (tangible) assets are reported on a company's balance sheet and are bought or created to increase a firm's value or benefit the firm's operations. Natural capital assets are also tangible but are only beginning to be recorded in natural capital accounts.
Asset classes	An asset class is a group of securities that exhibits similar characteristics, behaves similarly in the marketplace and is subject to the same laws and regulations. The three main asset classes are equities, or stocks; fixed income, or bonds; and cash equivalents, or money market instruments. Some investment professionals add real estate, commodities, and increasingly, cryptocurrencies such as bitcoin, to the asset class mix.
Blended finance	A way to pull together finance from different sources for a given project or programme. Sources should have different risk and return expectations to balance each other. Thereby, blended finance provides flexible funds to facilitate project development and reduce the risk of investment, thereby encouraging capital and knowledge flow from more risk-averse investors to develop the market.
Bonds	A fixed income investment in which an investor loans money to an entity (typically corporate or governmental) which borrows the funds for a defined period at a variable or fixed interest rate.
Capital	Financial assets invested or their financial value; the tangible factors of production and facilities within a business; stock of human knowledge and skills; social relationships and community ties and natural environment (species, habitats, and abiotic resources).

¹⁶ For more comprehensive glossaries, see IEMA (2018); Stockholm Sustainable Finance – <https://www.stockholmsustainablefinance.com/ssfc-lexicon/> and <https://www.investopedia.com>

Term	Definition/Explanation
(Conservation) Covenants	A legal commitment to conserve the land that stays with the land, even if the person who made the commitment sells the land. These ensure long term security of the assets invested in.
Commodity	A basic good used in commerce that is interchangeable with other commodities of the same type. Commodities are most often used as inputs in the production of other goods or services. The quality of a given commodity may differ slightly, but it is essentially uniform across producers. When they are traded on an exchange, commodities must also meet specified minimum standards, also known as a basis grade.
Debt	An obligation to make a future re-payment in exchange for an upfront investment. Investors expect repayment of their investment and may require some interest (or coupons). Bonds are a form of debt finance.
Environmental Social Governance (ESG)	Environmental, Social and Governance risks / criteria used to report / assess a company's operations. Environmental criteria consider how a company performs as a steward of nature. Social criteria examine how it manages relationships with employees, suppliers, customers, and the communities where it operates. Governance deals with a company's leadership, executive pay, audits, internal controls, and shareholder rights.
Equity	The acquisition of ownership rights (company or financial asset) in exchange for a payment. Investors expect some dividends as repayments and/or capital gains (i.e. the difference between purchase and sale price) on sale of their rights (or shares). Stocks are a form of equity finance.
Finance	The action of 'raising' money/funds (for expenditure), or the amount of money raised.
Grant	Transfers made in cash, goods or services for which no repayment is required, meaning no risk and no return for investors.

Glossary

Term	Definition/Explanation
Green bonds	any type of bond instrument where the proceeds will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible green projects.
Investment	An investment is an asset or item acquired with the goal of generating income or (capital) appreciation (increase in the value of the asset) over time.
Natural Capital	The elements of nature that directly and indirectly produce value or benefits to people, including ecosystems, species, freshwater, land, minerals, the air and oceans, as well as natural processes and functions.
Patient equity	Equity held by investors with a long-term perspective, whereby they are willing to forgo maximum short term returns in favour of longer-term returns.
Patient investment	A long-term investment, where the investor is willing to forgo maximum short term returns in favour of longer-term returns.
Philanthropic capital	Capital that aims to obtain broader societal benefits and has no or reduced expectation of any financial return.
Return	The profit or loss derived from an investment (or saving).
Risk	Risk takes on many forms but is broadly described as the chance an outcome or investment's actual return will differ from the expected outcome or return.
Securities	Investments that are traded on a secondary market. The most well-known examples include stocks and bonds. Securities allow you to own the underlying asset without taking possession. For this reason, securities are readily traded. That means they're liquid. They are easy to price, and so are excellent indicators of the underlying value of the assets.
Social bonds	Raise capital used to finance or re-finance projects with positive social outcomes.

Term	Definition/Explanation
Socially Responsible Investing	<p>An investment approach taking into account the ESG criteria, but which also actively excludes or selects investments according to ethical guidelines determined by the investors own ethical stances. Strategies used by SRI investors are “ethical negative screening, environmental/social negative screening, positive screening, community and social investing, best-in-class, financially-weighted best-in-class, sustainability/ climate change themes, constructive engagement, shareholder activism, integrated analysis, and norms-based screening” (Krosinski et al, 2009).</p>
Sovereign bond (debt)	<p>Debt securities issued by a national government backed by taxation and/or government assets. They can be denominated in either a foreign or the national currency.</p>
Sustainable Development Goals	<p>A collection of 17 global goals set by the UN in 2015 for the year 2030. They apply globally, are broad based and interdependent.</p> <p><i>There are 17 goals:</i></p> <ol style="list-style-type: none"> 1. No Poverty; 2. Zero Hunger; 3. Good Health and Well-being; 4. Quality Education; 5. Gender Equality; 6. Clean Water and Sanitation; 7. Affordable and Clean Energy; 8. Decent Work and Economic Growth; 9. Industry, Innovation, and Infrastructure; 10. Reducing Inequality; 11. Sustainable Cities and Communities; 12. Responsible Consumption and Production; 13. Climate Action; 14. Life Below Water; 15. Life On Land; 16. Peace, Justice, and Strong Institutions and 17. Partnerships for the Goals.

References

A4S (2019) (CFO Leadership Network) Essential Guide to Debt Finance: embedding environmental, social and governance considerations into treasury team activities

<https://www.accountingforsustainability.org/debt-finance.html>

BCG (2019) Global Asset Management 2019: Will These '20s Roar?

Available at: <https://www.bcg.com/en-gb/publications/2019/global-asset-management-will-these-20s-roar.aspx>

eftec (2018) Natural Capital Financing for Peatland, developed for the IUCN

UK Peatland Programme, https://www.iucn-uk-peatlandprogramme.org/sites/www.iucn-uk-peatlandprogramme.org/files/Natural%20capital%20financing%20for%20peatland_eftec_final_311018.pdf

eftec and Environmental Finance (2018) Greater Manchester Combined Authority Investment Plan – <https://naturegreatermanchester.co.uk/project/greater-manchester-natural-capital-investment-plan/>

Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE) –

<https://encore.naturalcapital.finance/en/about>

European Commission (2017) Defining “green” in the context of green finance, Final report. http://ec.europa.eu/environment/enveco/sustainable_finance/pdf/studies/Defining%20Green%20in%20green%20finance%20-%20final%20report%20published%20on%20eu%20website.pdf

European Investment Bank (Natural Capital Financing Facility – NCFF)

(undated) *Investing in Nature: Financing conservation and nature-based solutions: A Practical Guide for Europe*. <https://www.eib.org/attachments/pj/ncff-invest-nature-report-en.pdf>

Gifford, R., (2019) Chair of Green Finance Institute <https://www.greenfinanceinstitute.co.uk/news/time-for-the-city-to-act-on-climate-change-is-now/>

Global Impact Investing Network (GIIN) (2019) Sizing the Impact Investing

Market. Available at: https://thegiin.org/assets/Sizing%20the%20Impact%20Investing%20Market_webfile.pdf

Global Sustainable Investment Alliance, 2018. 2018 Global Sustainable Investment Review. Available at: http://www.gsi-alliance.org/wp-content/uploads/2019/03/GSIR_Review2018.3.28.pdf

IEMA (2018), Guide on Sustainable Finance, <https://www.iema.net/iema-guide-on-sustainable-finance>

Krosinsky, C. & Robins, N. (2009) 'After the Crunch: The Future of Sustainable Investing and Carbon Finance', Carbon Finance Speaker Series at Yale, April 7.

Natural Capital Finance Alliance (2019) *Integrating Natural Capital in Risk Assessments: A step-by-step guide for banks*, Natural Capital Finance Alliance and PricewaterhouseCoopers (Geneva, Oxford and London).

Thomas, R-M. (2019) Green Finance Institute <https://www.greenfinanceinstitute.co.uk/news/dr-rhian-mari-thomas-introduces-the-green-finance-institute/>

UK Government (2019) Green Finance Strategy (also includes Green Finance Education Charter) <https://www.gov.uk/government/publications/green-finance-strategy>

UNEP Inquiry (2016). Definitions and Concepts. Background Note, Inquiry Working Paper 16/13, September 2016. http://unepinquiry.org/wp-content/uploads/2016/09/1_Definitions_and_Concepts.pdf

Vivid Economics and Environmental Finance, *Natural capital finance model – Strategic Outline Case*, report prepared for Defra, March 2018 – <http://scienceresearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=20096>

World Bank (2019) Carbon Trends, State and Trends of Carbon Pricing.

Initiatives, working groups and official documents

Documents

Global

- Equator Principles – <https://equator-principles.com/>
- ISO / BSI work on green finance standards – <https://www.mainstreamingclimate.org/iso/> (information about ISO as it relates to climate) & green finance page: <https://www.iso.org/standard/75619.html> / sustainable finance page <https://www.iso.org/committee/7203746.html>
- United Nations Principles for Responsible Investment – <https://www.unpri.org/>
- United Nations Environment Programme Finance Initiative – <https://www.unepfi.org/>

Europe

- European Commission High Level Expert Group on Sustainable Finance https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en#hleg
- European Commission Sustainable Finance Taxonomy (July 2019) https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/190618-sustainable-finance-teg-report-taxonomy_en.pdf
- Positive Impact Finance – EU business biodiversity platform 2018 https://ec.europa.eu/environment/biodiversity/business/assets/pdf/Positive_Impact_Finance-EU_Business_Biodiversity_Platform_2018.pdf

UK

- Peatland Carbon Code – <https://www.iucn-uk-peatlandprogramme.org/funding-finance/peatland-code>
- Task Force on Climate Related Financial Disclosures (TCFD) <https://www.fsb-tcfd.org/>
- Woodland Carbon Code – <https://www.woodlandCarboncode.org.uk/>

Organisation and working groups

- Blended Finance Initiative – <https://www.systemiq.earth/blended-finance-taskforce>
- Centre on Green Finance and Investment – <https://www.oecd.org/cgfi/>
- Climate Bond Initiative – <https://www.climatebonds.net/>
- Climate Change Disclosure Standards Board – <https://www.cdsb.net/>
- Coalition for Private Investment in Conservation – <http://cpicfinance.com/>
- G20 Sustainable Finance Study Group – <http://unepinquiry.org/g20greenfinancerepositoryeng/>
- Green Finance Institute – <https://www.greenfinanceinstitute.co.uk/>
- Impact Investment Institute – <https://www.impact-investinginstitute.org/>
- Institutional Investors Group on Climate Change – <https://www.iigcc.org/>
- Natural Capital Coalition – <https://naturalcapitalcoalition.org/>
- Natural Capital Finance Alliance – <https://naturalcapital.finance/>
- Share Action – <https://shareaction.org/>

Networks

- Ecosystems Knowledge Network – Finance Group – <https://ecosystemsknowledge.net/>
- Network for Greening the Financial System – <https://www.banque-france.fr/node/5062>
- The UK Sustainable Investment and Finance Association – <https://uksif.org/>

Further reading

Bigger Than Carbon (Kepler Cheuvreux and eftec) –
<https://naturalcapitalcoalition.org/wp-content/uploads/2018/03/Bigger-than-Carbon-1.pdf>

Coldecot, Ben, Sustainable Finance: What Is It, Why Does It Matter, And What Are The Latest Developments – http://wcm.coop/pdfs/apresentacoes/2018/ben_caldecott_wcm2018.pdf

Conservation finance –
<https://www.cbd.int/financial/privatesector/g-private-wwf.pdf>

Natural Capital Coalition, Natural Capital Finance Sector Supplement –
<https://naturalcapitalcoalition.org/>

Sewell, A., Bouma, J., and van der Esch, S (2016) Investigating the challenges and opportunities for scaling up Ecosystem Restoration, The Hague: PBL Netherlands Environmental Assessment Agency. https://www.pbl.nl/sites/default/files/downloads/pbl-2016-investigating-the-challenges-and-opportunities-for-scaling-up-ecosystem-restoration_2356.pdf

The Little Biodiversity Finance Book –
https://www.globalcanopy.org/sites/default/files/documents/resources/LittleBiodiversityFinanceBook_3rd%20edition.pdf

Further listening

- Podcast: Perspectives Towards a Sustainable Future by Jason Mitchell, Man Group
- Podcast: Outrage & Optimism by Christiana Figueres
- Webinars: Bright Talk www.brighttalk.com

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